**Winnebago Landfill**
**Winnebago County, Illinois**

**Permit Number: 1991-138-LF**
**Site Number: 2018080001**

# Alternate Source Demonstration

**October 2010**

*Submitted to:*
Illinois Environmental Protection Agency
Bureau of Land
Springfield, Illinois

*Prepared for:*
Winnebago Landfill
8403 Lindenwood Road
Rockford, Illinois

*Prepared by:*
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October 12, 2010

Stephen F. Nightingale
Manager, Permit Section
Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276

Re: 2018080001 – Winnebago County
Winnebago Landfill
Alternate Source Demonstration

Dear Mr. Nightingale:

On behalf of our client, Winnebago Landfill, submitted herein are an original and three copies of an alternate source demonstration in accordance with Condition VIII.15 of Permit No. 1991-138-LF Modification 42. Application forms (LPC-PA1, Certification of Authenticity, and copies of the LPC-PA16s) are provided in Appendix A of the application.

Please contact Tom Hilbert at (815) 963-7516 if you have any questions or require additional information.

Sincerely,

Teresa N. Sharp

Teresa N. Sharp
Environmental Scientist

TNS:bjh:sjb

Enclosure(s)

cc: Tom Hilbert – William Charles Waste Companies
Bernie Shorle – US EPA Region 5

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Applications

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# 1. INTRODUCTION

Condition No. VIII.15 of Permit No. 1991-138-LF Modification No. 42 requires that an alternate source demonstration be conducted for all confirmed monitored increases detected in facility monitoring wells or that an assessment monitoring program be implemented to determine whether the facility is the source of the increases. Exceedences that were observed second quarter 2010 were sampled for confirmation during the third quarter 2010 event. This application provides an alternate source demonstration for the second quarter 2010 confirmed exceedences. The application forms (Certification of Authenticity, LPC-PA1, and copies of the LPC-PA16 forms) are contained in Appendix A.

# 2. BACKGROUND INFORMATION

## 2.1 Site Description

The facility contains two separate disposal areas (Northern and Southern Units) authorized under a single operating permit (Illinois EPA Permit No. 1991-138-LF). A site map has been provided as Figure 1. The Northern Unit ceased accepting waste on September 8, 2000. The Southern Unit continues to operate in accordance with the current permit. In addition, a North Expansion Unit, located between the existing Northern Unit and Baxter Road, began operation under Illinois Permit No. 2006-221-LF on May 16, 2008. This unit is also shown in Figure 1.

## 2.2 Site History

The Northern Unit of Winnebago Landfill, previously known as Pagel's Pit, was added to the National Priorities List in June 1986 due to upgradient groundwater contamination (chlorinated solvents) migrating from the Acme Solvents Superfund site and inorganic increases downgradient of the Northern Unit. Based on perceived groundwater contamination adjacent to the North Unit (at the Acme Solvents site), the U.S. EPA signed a Record of Decision (ROD) in June 1991 requiring Remedial Design and Remedial Action plans. The ROD was incorporated into a Consent Decree entered in the U.S. District Court for the Northern District of Illinois, Western Division, Case No. 92-C-20346 in February 1993. A ROD amendment was later submitted to the U.S. EPA in 1997 for a new or revised Consent Decree to reflect a new Statement of Work (SOW) due to a change in the remedy. The subject amendment to the ROD was issued in 1999.

The facility currently exists with a Groundwater Management Zone (GMZ) and approved remediation program via source control. The GMZ application was submitted July 10, 1995 (Illinois EPA Log No. 1995-250) to facilitate compliance of the Northern Unit with the applicable requirements of 35 Illinois Administrative Code (Ill. Adm. Code) Parts 811 and 812, pursuant to Sections 814.104, 814.301, and 814.302.

## 2.3 Site Hydrogeological Summary

The site hydrogeologic characteristics have been accurately determined based on implementation of a series of subsurface investigations, beginning with the initial drilling investigation in 1969 by Testing Engineers, Inc. Subsequent investigations have included advancement of borings, well/piezometer installations for the existing site and facility expansion, and comprehensive groundwater quality testing due to impacts from Acme Solvents. Additional hydrogeologic

information has been gained due to development activities of the North Expansion Unit, which includes excavation of materials exposing bedrock and unconsolidated deposits.

### *2.3.1 Unconsolidated Deposits*

The composition of the unconsolidated deposits, which appear to be glacial outwash, varies with location throughout the facility boundaries. Coarse-grained sand and gravel with occasional silt and/or clay seams typically underlie the Northern Unit. The thickness of the sand and gravel varies from just a few feet beneath the east toe of the waste footprint to approximately 70 feet beneath the western edge of the waste boundary. The sand and gravel thickens to the west, corresponding with the erosion of the underlying dolomite. Unconsolidated sand and gravel glacial drift sediments directly underlay the western portion of the Northern Unit, while fractured dolomite bedrock underlies the eastern portion of the landfill.

### *2.3.2 Bedrock*

The bedrock consists of dolomite, fractured and weathered to varying extents. Chert layers, chert nodules, and small vugs were commonly noted on boring logs. However, larger voids or karst characteristics were not indicated on the boring logs. The bedrock surface is highly variable throughout the facility, with a high of approximately 750 feet above mean sea level (MSL) at the southeast corner of the Northern Unit to a low of approximately 675 feet above MSL to the west and south of the Southern Unit. East of the site a dolomite bedrock upland is present and outcrops in the vicinity of the Acme Solvent site. This bedrock upland represents the eastern bedrock escarpment of the Upper Rock buried valley. The site is situated on the eastern edge of the Upper Rock buried bedrock valley. The overburden thickens as the elevation of the bedrock surface decreases to the west. As determined by boring investigations included as part of the 1997 Annual Evaluation of Effectiveness of GMZ (HSI GeoTrans, May 1997), the bedrock continues to decrease in elevation west of the site to approximately 645 feet above MSL directly west of Killbuck Creek.

### *2.3.3 Uppermost Aquifer*

The uppermost aquifer for the site is located within the glaciofluvial sand and gravel deposits and the upper portion of the fractured dolomite bedrock. The saturated sands and gravels, which directly overlie the bedrock, occur in the western two-thirds of the Northern Unit. In locations where there are no saturated glaciofluvial deposits, the uppermost aquifer is located within the dolomite bedrock typically overlain by silty clay deposits. This occurs in the eastern third of the Northern Unit.

### *2.3.4 Groundwater Flow Conditions*

The general flow direction within the uppermost aquifer is westward and downward in the bedrock upland east of the site. However, groundwater may flow upward from the bedrock to the unconsolidated sediments in areas where sediments are saturated (HSI GeoTrans, 1995). This is due to the higher permeability of the sand and gravel deposits. Groundwater flow in the unconsolidated sediments is to the west-northwest. Potentiometric surface maps provided in Appendix B indicate groundwater movement is generally west-northwest beneath the Northern Unit. Groundwater elevations obtained from recent monitor wells and piezometers installed west of Kilbuck Creek indicate flow is to the north, west of Kilbuck Creek.

Shallow groundwater may discharge to Killbuck Creek while groundwater in the lower part of the unconsolidated sediments and deeper bedrock flows beneath Killbuck Creek.

Killbuck creek is both a gaining and losing stream dependent upon hydrologic and atmospheric conditions. During drier periods where the water table drops below the bottom of the creek bed, surface waters feed the groundwater system. During wetter periods where the water table is high (above the bottom of the creek bed) the groundwater system will recharge the stream and wetlands. This fluctuation allows mixing of surface water (and, therefore, surface water constituents) with groundwater (and any groundwater constituents) often on a seasonal basis. In addition, dependent upon the creek stage, the surface waters of both the creek and the wetland mitigation area may be contiguous.

The aquifer system beneath the facility, which includes both the saturated sand and gravel and the upper weathered/fractured part of the dolomite, extends to an approximate depth of 665 feet MSL. East of the landfill and beneath the eastern quarter of the Northern Unit, the water table occurs within the dolomite bedrock. Beneath the western three-fourths of the site and within the Killbuck Creek Valley, the water table occurs within the sand and gravel deposits. Previous hydrogeologic investigations and evaluations have shown that vertical gradients do exist within the uppermost aquifer but are typically slight at any individual location. Therefore, groundwater elevations from the bedrock wells and wells screened in the unconsolidated materials (sand and gravel) were used to create one potentiometric surface for each quarterly sampling period. As expected, the hydraulic gradients are greater at the east end of the facility where the bedrock is higher and flat near Killbuck Creek.

# 3. GROUNDWATER QUALITY

In accordance with 35 Ill. Adm. Code 811.319 and the current permit, the groundwater quality is evaluated on a quarterly basis. Results of the statistical evaluations are reported quarterly in accordance with Condition No. VIII.18. Notification of observed increases/confirmed increases have been submitted in accordance with Condition No. VIII.14 of the permit.

## 3.1 Existing Monitor Well Network

The facility has an extensive network of monitoring wells from which groundwater data are obtained. Separate monitor well networks exist for the Northern and Southern Units. The Northern Unit contains 23 groundwater monitoring points, of which five are designated as background groundwater quality wells (upgradient), one is a compliance boundary well at the edge of the zone of attenuation and the remaining wells monitor within the zone of attenuation downgradient and sidegradient of the landfill. Winnebago Landfill samples 10 additional wells on a quarterly basis as part of the GMZ monitoring network. Six temporary monitoring wells were installed and sampled from October to December 2009 to monitor the groundwater quality west of the permitted GMZ area. Each of the wells is identified in Figure 1. The following table provides a list of the monitoring wells for the Northern Unit.

| Northern Unit Detection Monitoring Wells (23) | |
|---|---|
| Upgradient | G09D, G09M, G13S, G13D, G20D |
| Compliance Boundary | R39S |
| Zone of Attenuation | G03M, G16M, G17S, G18D, G18S, G33D, G34D, G35D, G36S |
| | G37S, G38S, G40S, G41D, G41M, G41S, R42S, G51S |
| **Northern Unit GMZ Only Wells (10)** | |
| Compliance Boundary | G52S, G52M |
| Zone of Attenuation | R03S, G16D, G33S, G34S, G35S, G37D, G130, G50S |
| **Northern Unit Temporary Wells (6)** | |
| Zone of Attenuation | T1U-A, T1L-A, T2U-A, T2L-A, T3U-A, T3L-A |

The Southern Unit contains 17 permitted groundwater monitoring points. Six are designated as background groundwater quality wells (upgradient); two (G13S and G13D) are also background wells for the Northern Unit. Although, monitoring wells R05S, G29S, and G29D are permitted as zone of attenuation wells, based on the potentiometric surface maps (Appendix B), these wells are also located upgradient to the waste units. The wells have been used previously in the derivation of the background/applicable groundwater quality standards (AGQS) values for the unit. The following table lists the monitoring wells for the Southern Unit.

| Southern Unit Detection Monitoring Wells (17) | |
|---|---|
| Upgradient | R11S, G11D, G13S, G13D, R22S, G22D |
| Zone of Attenuation | R05S, G23D, R24D, R25D, G26S, G26D, R27D, R28D, G29S, G29D, G49D |

## 3.2 Background Concentrations

The initial background concentrations (AGQSs) for the Northern Unit were determined from data obtained from four wells located east of Lindenwood Road (B-8, STI-2S, STI-2I, and STI-2D). Background sampling occurred during 1990 through 1992. The AGQSs were proposed in the initial significant modification application and subsequent addendums. Addendum 3 to the initial significant modification, dated February 10, 1993, provided the first full listing of routine AGQS values derived from wells G09M, G09D, G13S, and G13D. Since the time the background concentrations were obtained, remediation at the Acme Solvent facility ceased and a quarry began operation east of Acme Solvents (both facilities are located upgradient to the landfill). The approximate location of Acme Solvents and the quarry are shown in Figure 2. These activities have likely affected the current background conditions. To account for changes in the background groundwater quality since 1993, revised AGQS values for 60 G1 and G2 List parameters were submitted and subsequently approved on March 26, 2004 with the issuance of Modification 24 to the current permit.

The initial AGQSs for the Southern Unit were determined from data obtained from the permitted upgradient/background wells. However, revisions to several background values have included data from wells R05S, G29S, and G29D as part of the statistical derivation. Although permitted as zone of attenuation wells, these wells are actually hydraulically upgradient to the Southern Unit and provide additional information on the background groundwater quality. As mentioned in Section 3.1 above, monitor wells G13S and G13D are contained in the monitor well networks for both the Northern and Southern Units. The groundwater quality for these two wells along with R05S (Southern Unit) and G16S/D (Northern Unit) are not evaluated with respect to the

permitted AGQSs but are reviewed based on trend analyses in accordance with Condition VIII.25 of Permit No. 1991-138-LF (Modification No. 42).

## 3.3 Confirmed Increases

The table below lists the parameters and wells that have been confirmed to exceed the criteria listed in Condition VIII.13 during the second quarter 2010 sampling event at Winnebago Landfill. Second quarter 2010 confirmed exceedences at G13D (ammonia, arsenic, boron, chloride, and sulfate) and R22S (chloride and chromium), which are already being addressed by either pending Application Log No. 2010-152 or 2010-373, are not discussed as part of this application. The historical sampling results for each of the exceeding wells/parameters are provided as Table 1 and Table 2 for the Northern and Southern Units, respectively. Each confirmed increase is discussed in detail in the sections below. In addition, graphical trend analyses have also been conducted for each of the confirmed exceedences and are provided in Appendix C.

| Unit | Well | Location | Confirmed Increases |
|---|---|---|---|
| Northern | G13D | Upgradient | dissolved ammonia *, dissolved arsenic *, dissolved boron *, dissolved chloride *, dissolved chromium, dissolved sulfate *, total dissolved solids |
| Southern | R22S | Upgradient | dissolved chloride *, dissolved chromium *, total dissolved solids |
| Southern | R28D | Downgradient | dissolved arsenic |

*indicates parameter is currently being addressed by either pending Application Log Nos. 2010-152 or 2010-373

### *3.3.1 Dissolved Arsenic*

The concentration of dissolved arsenic at Southern Unit well R28D exceeded the interwell AGQS value (3.801 ug/l) during second quarter 2010 (4.3 ug/l) and was confirmed third quarter 2010 (5.6 ug/l). Concentrations of dissolved arsenic have only exceeded the interwell AGQS value at R28D once before, during fourth quarter 2009. This exceedence was not confirmed. Historically, there have been no confirmed exceedences of any other List G1 indicator parameters at R28D. Also, there have been no exceedences of any organic parameters at R28D, with the exception of phenolics. However, phenolics concentrations have been non-detect (<5 ug/l) at R28D since second quarter 2002.

Concentrations of dissolved arsenic at R28D are proportionate to dissolved arsenic concentrations in various wells across the landfill. Historical concentrations of dissolved arsenic observed at Southern Unit wells range from 1 to 43 ug/l, the highest concentration being recorded at upgradient well G13D during second and third quarter 2010 (43 ug/l for both sampling events). Based on the equipotential lines contained in the potentiometric surface maps, well R28D is almost directly downgradient of G13D. Therefore, an increase at G13D is expected to influence the concentration at R28D. Concentrations of dissolved arsenic observed at R28D are well within the normal range for the facility. This along with the lack of indicator parameter exceedences or organic detections, indicates that the elevated arsenic concentrations are not related to waste disposal activities but to upgradient conditions as identified in well G13D. Therefore, an intrawell value (24.70 ug/l) is proposed for dissolved arsenic at R28D. The statistical method and intrawell calculations are provided in Appendix D and Appendix E, respectively.

### 3.3.2 *Dissolved Chromium*

The concentration of dissolved chromium at upgradient well G13D exceeded the interwell AGQS value (12 ug/l) during second quarter 2010 (72 ug/l) and was confirmed third quarter 2010 (70 ug/l). Dissolved chromium was added to the facility G1 monitoring list during third quarter 2008 as part of the regulatory amendments imposed by Illinois Pollution Control Board Rulemaking Docket No. R2007-008. Since there are only two years of data available for this parameter, historical concentration profiles cannot be derived. Well G13D is located upgradient of the facility and is not expected to be impacted by the facility. There have also been no confirmed exceedences of dissolved chromium at any of the wells downgradient of the facility, further indicating that the elevated concentrations at G13D are not related to the landfill.

A complete reevaluation of the background groundwater quality for the Northern Unit has been proposed as part of pending application Log Nos. 2010-038 (GMZ investigation report) and 2010-152 (alternate source demonstration). Concentrations of dissolved chromium will be reevaluated at that time and a revised AGQS will likely be proposed to account for the upgradient concentrations of the parameter. Exceedences of dissolved chromium will continue to be reported to the Illinois EPA in accordance with Condition VIII.14 of the permit; however, any additional assessment (i.e., alternate source demonstrations/assessment monitoring required by Condition VIII.15) will be conducted as part of the background reevaluation.

### 3.3.3 *Total Dissolved Solids*

Concentrations of total dissolved solids at G13D have sporadically exceeded the interwell AGQS (,1755.8 mg/l) since first quarter 2009. As mentioned above, monitoring well G13D is located upgradient of the facility and is not expected to be impacted by the facility. Total dissolved solids are simply a measure of the amount of dissolved constituents in the groundwater. In review of the second and third quarter analytical data from G13D, dissolved concentrations for the following parameters have increased: ammonia, arsenic, boron, chloride, chromium, lead, nitrite (as nitrogen), potassium, and zinc. With the exception of dissolved chromium and total dissolved solids, no other parameter was identified as a confirmed exceedence in well G13D. The confirmed increase of total dissolved solids is likely the result of the increases in the aforementioned parameters.

A complete reevaluation of the background groundwater quality for the Northern Unit has been proposed as part of pending application Log Nos. 2010-038 (GMZ investigation report) and 2010-152 (alternate source demonstration). Concentrations of total dissolved solids will be reevaluated at that time and a revised AGQS will likely be proposed to account for the upgradient concentrations of the parameter. Exceedences of total dissolved solids will continue to be reported to the Illinois EPA in accordance with Condition VIII.14 of the permit; however, any additional assessment (i.e., alternate source demonstrations/assessment monitoring required by Condition VIII.15) will be conducted as part of the background reevaluation.

The concentration of total dissolved solids at upgradient well R22S exceeded both the interwell (1,310.4 mg/l) and intrawell (2,105.4 mg/l) AGQS values during second quarter 2010 (2,400 mg/l) and was confirmed third quarter 2010 (2,400 mg/l). There have been no other confirmed exceedences of any other List G1 indicator parameters at R22S, with the exception of dissolved chloride and dissolved chromium. The elevated concentrations of dissolved chloride and dissolved chromium are due to spatial variability, therefore intrawell AGQS values have been proposed as part of pending Application Log Nos. 2010-152 and 2010-373, respectively. The

increases of total dissolved solids are likely related to the current elevated concentrations of dissolved chloride and dissolved chromium.

As discussed in previous applications (including recent Log Nos. 2005-088, 2007-012, and 2008-070, 2010-152, and 2010-373), although R22S is hydraulically upgradient of the waste unit (as shown in the potentiometric surface maps provided in Appendix B), groundwater data from the well were not used in the derivation of the interwell background values. This is due to the fact that R22S monitors a lithologic setting significantly different from the rest of the Southern Unit wells. Well R22S screens a silty lens within a clay wedge while all other Southern Unit wells screen aerially extensive sand and gravel deposits. To account for the spatial variability at this location, a revised intrawell AGQS (3,750.32 mg/l) is proposed for total dissolved solids. The statistical method and intrawell calculations are provided in Appendix D and Appendix E, respectively.

# 4. RECOMMENDATIONS AND CONCLUSIONS

Based on an evaluation of the historic sampling results, trend analyses, groundwater flow direction, and background information, the confirmed increases are not associated with the landfills, but appear to be related to upgradient groundwater quality or temporal/spatial variability. A complete reevaluation of the background groundwater quality for the Northern Unit has been proposed as part of pending application Log Nos. 2010-038 (GMZ investigation report) and 2010-152 (alternate source demonstration). Concentrations of dissolved chromium and total dissolved solids at well G13D will be reevaluated at that time and a revised AGQS will likely be proposed to account for the upgradient concentrations of the parameter. Intrawell values have been proposed (24.70 ug/l) for dissolved arsenic at R28D and (3,750.32 mg/l) for total dissolved solids at R22S to address spatial variability. This alternate source demonstration fulfills the requirements of Condition No. VIII.15 of Permit No. 1991-138-LF Modification No. 42.

# TABLES

**Table 1**
**Winnebago Landfill**
**Northern Unit Analytical**
**G13D**

| Well ID | Parameter | Units | GW List | AGQS | Addressed | 1stQtr97 | 2ndQtr97 | 3rdQtr97 | 4thQtr97 | 1stQtr98 | 2ndQtr98 | 3rdQtr98 | 4thQtr98 | 1stQtr99 | 2ndQtr99 | 3rdQtr99 | 4thQtr99 | 1stQtr00 | 2ndQtr00 | 3rdQtr00 | 4thQtr00 | 1stQtr01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G13D | Ammonia as N, dissolved | mg/l | G1 | 0.9 | * | 0.43 | 0.3 | 0.3 | 0.97 | 0.38 | 0.372 | 0.18 | 0.32 | 0.17 | < 0.1 | < 0.1 | 0.34 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.12 |
| G13D | Arsenic, Dissolved | ug/l | G1 | 2 | * | < 2.2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 3 | < 2 | < 3 | < 0.84 | < 3 | < 3 | < 3 | 1.4 | < 2 | < 2 | < 2 |
| G13D | Boron, Dissolved | ug/l | G1 | 98 | * | < 110 | < 110 | < 110 | < 110 | 120 | < 110 | 110 | 110 | < 100 | 140 | < 100 | < 100 | < 100 | < 98 | < 98 | 100 | < 98 |
| G13D | Cadmium, Dissolved | ug/l | G1 | 5 | | < 0.44 | < 0.4 | < 0.44 | < 0.44 | < 0.44 | < 0.44 | < 0.3 | < 0.49 | < 1 | < 0.3 | < 1 | 0.46 | < 0.3 | < 1 | < 0.3 | < 0.3 | < 0.3 |
| G13D | Chloride, Dissolved | mg/l | G1 | 87.511 | * | 31.6 | 53.8 | 46.1 | 42.6 | 44.1 | 48.2 | 48 | 31 | < 2 | 37 | 34 | 30 | 30 | 92 | 42 | 46 | 41 |
| G13D | Chromium, dissolved | ug/l | G1 | 12 | | | | | | | | | | | | | | | | | | |
| G13D | Cyanide, Total | mg/l | G1 | 0.34 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.01 | < 0.0034 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| G13D | Lead, Dissolved | ug/l | G1 | 4 | | < 3.3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | 3.9 | < 3 | < 3 | < 3 | 6.4 | < 3 | < 3 | < 3 | < 3 | < 3 |
| G13D | Magnesium, dissolved | mg/l | G1 | 170.41 | | | | | | | | | | | | | | | | | | |
| G13D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | | |
| G13D | Nitrate as N, dissolved | mg/l | G1 | 11.74 | * | 1.55 | 1.12 | 2.01 | 1.16 | 0.11 | 1.74 | 0.44 | 0.25 | 0.94 | < 0.2 | < 0.2 | 0.28 | 9.6 | < 0.2 | < 0.2 | 0.3 | < 0.2 |
| G13D | pH (field) | units | G1 | 5.4 - 8.1 | | 6.4 | 6.41 | 6.4 | 6.4 | 6.38 | 6.65 | 6.39 | 6.88 | 6.83 | 7.6 | 6.69 | 6.21 | 7.13 | 8.3 | 7.46 | 6.56 | 6.48 |
| G13D | Specific Conductance (field) | umhos | G1 | 2386.55 | | 1350 | 1380 | 1420 | 1090 | 1420 | 1440 | 1390 | 1390 | 1260 | 1360 | 1300 | 1458 | 725 | | 1239 | 1292 | 1304 |
| G13D | Sulfate, Dissolved | mg/l | G1 | 119.5 | # | 34.6 | 25.4 | 34.2 | 28.5 | 28.2 | 35.9 | 24 | 44 | 32 | 32 | 29 | 23 | 28 | 14 | 26 | 22 | 21 |
| G13D | Total Dissolved Solids, filtered | mg/l | G1 | 1755.8 | | 812 | 638 | 504 | 921 | 839 | 783 | 950 | 780 | 760 | 790 | 990 | 740 | 430 | 900 | 770 | 770 | 770 |
| G13D | Zinc, Dissolved | ug/l | G1 | 236072.4 | | 160 | 110 | 76 | 190 | 220 | 126 | 61 | 220 | 140 | 490 | 530 | 360 | < 20 | 620 | 320 | 520 | 220 |
| G13D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,1,1-Trichloroethane | ug/l | G2 | 12 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,1-Dichloroethane | ug/l | G2 | 31 | | | 14 | | | | 22 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,1-Dichloroethene | ug/l | G2 | 2.5 | | | < 2 | | | | < 2 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,1-Dichloropropene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | * | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | * | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 2 | | | | < 2 | | | |
| G13D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2-Dichloroethane | ug/l | G2 | 2.5 | | | < 2 | | | | < 2 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,2-Dichloropropane | ug/l | G2 | 6 | | | < 5 | | | | 6 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,3-Dichloropropane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 1,3-Dichloropropene | ug/l | G2 | 5 | | | < 5 | | | | | | | | | | | | | | | |
| G13D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | * | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 2,2-Dichloropropane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 2-Butanone (MEK) | ug/l | G2 | 5 | | | < 10 | | | | < 5 | | | | < 5 | | | | < 5 | | | |
| G13D | 2-Chlorotoluene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 2-Hexanone (MBK) | ug/l | G2 | 10 | | | < 10 | | | | < 10 | | | | < 5 | | | | < 5 | | | |
| G13D | 4-Chlorotoluene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | < 10 | | | | < 10 | | | | < 5 | | | | < 5 | | | |
| G13D | Acetone | ug/l | G2 | 10 | # | | < 10 | | | | < 10 | | | | < 5 | | | | < 5 | | | |
| G13D | Acrylonitrile | ug/l | G2 | 10 | | | < 10 | | | | < 10 | | | | < 5 | | | | < 5 | | | |
| G13D | Benzene | ug/l | G2 | 2.8 | | | < 2 | | | | < 2 | | | | < 1 | | | | < 1 | | | |
| G13D | Bromobenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Bromochloromethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Bromodichloromethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Bromoform | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Bromomethane | ug/l | G2 | 10 | | | < 10 | | | | < 5 | | | | < 2 | | | | < 2 | | | |
| G13D | Carbon disulfide | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Carbon tetrachloride | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Chlorobenzene | ug/l | G2 | 5 | # | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Chloroethane | ug/l | G2 | 10 | | | < 10 | | | | < 5 | | | | < 2 | | | | < 2 | | | |
| G13D | Chloroform | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Chloromethane | ug/l | G2 | 10 | | | < 10 | | | | < 5 | | | | < 2 | | | | < 2 | | | |
| G13D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | 55 | | | | 98 | | | | < 1 | | | | < 1 | | | |
| G13D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Dibromochloromethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Dibromomethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Dichlorodifluoromethane | ug/l | G2 | 19 | | | 10 | | | | 11 | | | | < 2 | | | | < 1 | | | |
| G13D | Ethylbenzene | ug/l | G2 | 5 | * | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Hexachlorobutadiene | ug/l | G2 | 100 | | | < 5 | | | | < 5 | | | | < 11 | | | | 0 | | | |
| G13D | Iodomethane | ug/l | G2 | 10 | | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 | | | |
| G13D | Isopropylbenzene | ug/l | G2 | 5 | | | | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Methylene Chloride | ug/l | G2 | 8 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Naphthalene | ug/l | G2 | 100 | | | < 10 | | | | < 10 | | | | < 11 | | | | 0 | | | |
| G13D | n-Butylbenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | n-Propylbenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Oil (Hexane Soluble) | mg/l | G2 | 2.5 | | | < 5 | | | | < 5 | | | | < 5.4 | | | | < 1 | | | |
| G13D | Phenolics | ug/l | G2 | 100 | # | 32 | < 10 | < 10 | 12 | < 10 | < 10 | < 2.3 | 9.9 | < 10 | < 10 | < 10 | 30 | 13 | 80 | < 10 | < 10 | < 10 |
| G13D | p-Isopropyltoluene | ug/l | G2 | 5 | | | | | | | < 5 | | | | | | | | < 1 | | | |
| G13D | sec-Butylbenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Styrene | ug/l | G2 | 10 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | tert-Butylbenzene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | Tetrachloroethene | ug/l | G2 | 26 | | | 13 | | | | 15 | | | | < 1 | | | | < 1 | | | |
| G13D | Tetrahydrofuran | ug/l | G2 | 42 | * | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 | | | |
| G13D | Toluene | ug/l | G2 | 20 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 | | | |
| G13D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 | | | |
| G13D | Trichloroethene | ug/l | G2 | 66 | | | 21 | | | | 42 | | | | < 1 | | | | < 1 | | | |
| G13D | Trichlorofluoromethane | ug/l | G2 | 5 | | | < 5 | | | | < 5 | | | | < 2 | | | | < 1 | | | |
| G13D | Vinyl acetate | ug/l | G2 | 10 | | | < 10 | | | | < 10 | | | | < 5 | | | | < 5 | | | |
| G13D | Vinyl chloride | ug/l | G2 | 17 | | | 9 | | | | 15 | | | | < 2 | | | | < 2 | | | |
| G13D | Xylenes (Total) | ug/l | G2 | 5 | | | < 10 | | | | < 10 | | | | < 3 | | | | < 3 | | | |

Notes:
A highlighted cell indicates an exceedence.
* indicates Groundwater Management Zonce paramter
# indicates parameter being addressed by either pending Application Log No. 2010-152 or Log No. 2010-373

**Table 1**
**Winnebago Landfill**
**Northern Unit Analytical**
**G13D**

| Well ID | Parameter | Units | GW List | AGQS | Addressed | 2ndQtr01 | 3rdQtr01 | 4thQtr01 | 1stQtr02 | 2ndQtr02 | 3rdQtr02 | 4thQtr02 | 1stQtr03 | 2ndQtr03 | 2ndQtr03re | 3rdQtr03 | 4thQtr03 | 1stQtr04 | 2ndQtr04 | 2ndQtr04re | 3rdQtr04 | 3rdQtr04re |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G13D | Ammonia as N, dissolved | mg/l | G1 | 0.9 | * | < 0.1 | A 0.49 | 0.36 | 0.064 | 0.18 | < 0.05 | < 0.05 | 0.057 | < 0.05 | | 0.16 | 0.19 | 0.084 | 0.064 | | < 0.09 | |
| G13D | Arsenic, Dissolved | ug/l | G1 | 2 | * | < 2 | < 2 | 2 | < 1 | < 1 | 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Boron, Dissolved | ug/l | G1 | 98 | * | < 98 | < 98 | 120 | 140 | 95 | 110 | 120 | 80 | 90 | | 83 | 79 | 88 | 63 | | 65 | |
| G13D | Cadmium, Dissolved | ug/l | G1 | 5 | | 1.9 | < 0.3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Chloride, Dissolved | mg/l | G1 | 87.511 | * | 64 | 64 | 74 | 69 | 59 | 37 | 30 | 51 | 38 | | 70 | 68 | 59 | 86 | | 93 | 100 |
| G13D | Chromium, dissolved | ug/l | G1 | 12 | | | | | | | | | | | | 0 | | | | | | |
| G13D | Cyanide, Total | mg/l | G1 | 0.34 | | < 0.034 | < 0.01 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | |
| G13D | Lead, Dissolved | ug/l | G1 | 4 | | < 4 | < 3 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Magnesium, dissolved | mg/l | G1 | 170.41 | | | | | | | | | | | | 0 | | | | | | |
| G13D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | 0 | | | | | | |
| G13D | Nitrate as N, dissolved | mg/l | G1 | 11.74 | * | < 0.2 | 0.49 | 0.36 | 4.1 | 1.1 | 1.6 | 4 | < 0.02 | 0.055 | | 0.25 | 0.03 | < 0.02 | 0.06 | | 0.11 | |
| G13D | pH (field) | units | G1 | 5.4 - 8.1 | | 6.8 | 7.01 | 6.74 | 7.11 | 6.67 | 7.25 | 6.78 | 6.72 | 7.36 | | 6.49 | 6.82 | 6.8 | 7.39 | 6.42 | 6.45 | 6.36 |
| G13D | Specific Conductance (field) | umhos | G1 | 2386.55 | | 1294 | 2850 | 1080 | 920 | 680 | 965 | 1150 | 1160 | 830 | | 1560 | 970 | 880 | 1210 | 1450 | 1640 | 1470 |
| G13D | Sulfate, Dissolved | mg/l | G1 | 119.5 | # | 23 | 24 | 110 | 130 | 110 | 90 | 59 | 38 | 57 | | 43 | 27 | 48 | 22 | | 24 | |
| G13D | Total Dissolved Solids, filtered | mg/l | G1 | 1755.8 | | 820 | 880 | 980 | 780 | 890 | 700 | 760 | 870 | 800 | | 920 | 940 | 820 | 950 | | 1000 | |
| G13D | Zinc, Dissolved | ug/l | G1 | 236072.4 | | 230 | 1900 | 320 | 360 | 150 | 220 | 180 | 23 | 73 | | 94 | 30 | 12 | < 6 | | 9 | |
| G13D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,1,1-Trichloroethane | ug/l | G2 | 12 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,1-Dichloroethane | ug/l | G2 | 31 | | < 1 | | | | 2 | | | | 7 | 9 | 8 | 8 | 5 | 5 | | 7 | |
| G13D | 1,1-Dichloroethene | ug/l | G2 | 2.5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,1-Dichloropropene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | * | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | * | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | < 1 | | | | < 5 | | | | < 5 | | < 1 | < 1 | < 1 | < 5 | | < 5 | |
| G13D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | < 2 | | | | < 2 | | | | < 0.05 | | < 2 | < 2 | < 2 | < 0.05 | | < 0.05 | |
| G13D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | < 1 | | | | < 0.5 | | | | < 0.05 | | < 0.5 | < 0.5 | < 0.5 | < 0.05 | | < 0.05 | |
| G13D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,2-Dichloroethane | ug/l | G2 | 2.5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,2-Dichloropropane | ug/l | G2 | 6 | | < 1 | | | | < 1 | | | | 2 | 2 | < 1 | 2 | 1 | < 1 | | 2 | |
| G13D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,3-Dichloropropane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 1,3-Dichloropropene | ug/l | G2 | 5 | | < 1 | | | | < 2 | | | | < 2 | | < 1 | < 1 | < 1 | < 2 | | < 2 | |
| G13D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | * | < 1 | | | | < 1 | | | | 3 | 4 | 2 | 2 | 4 | 4 | | 3 | |
| G13D | 2,2-Dichloropropane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 2-Butanone (MEK) | ug/l | G2 | 5 | | < 5 | | | | < 5 | | | | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | |
| G13D | 2-Chlorotoluene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 2-Hexanone (MBK) | ug/l | G2 | 10 | | < 5 | | | | < 5 | | | | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | |
| G13D | 4-Chlorotoluene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | < 5 | | | | < 5 | | | | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | |
| G13D | Acetone | ug/l | G2 | 10 | # | < 5 | | | | < 10 | | | | < 10 | | < 10 | < 10 | < 10 | < 10 | | < 10 | |
| G13D | Acrylonitrile | ug/l | G2 | 10 | | < 5 | | | | < 5 | | | | < 5 | | < 50 | < 50 | < 50 | < 5 | | < 5 | |
| G13D | Benzene | ug/l | G2 | 2.8 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Bromobenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Bromochloromethane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Bromodichloromethane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Bromoform | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Bromomethane | ug/l | G2 | 10 | | < 2 | | | | < 2 | | | | < 2 | | < 2 | < 2 | < 2 | < 2 | | < 2 | |
| G13D | Carbon disulfide | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | 16 | < 1 | < 1 | | 1 | |
| G13D | Carbon tetrachloride | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Chlorobenzene | ug/l | G2 | 5 | # | < 1 | | | | < 1 | | | | 2 | 3 | 2 | 2 | 4 | 5 | | 4 | |
| G13D | Chloroethane | ug/l | G2 | 10 | | < 2 | | | | < 2 | | | | < 2 | | < 2 | < 2 | < 2 | < 2 | | < 2 | |
| G13D | Chloroform | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Chloromethane | ug/l | G2 | 10 | | < 2 | | | | < 2 | | | | < 2 | | < 2 | < 2 | < 2 | < 2 | | < 2 | |
| G13D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | < 1 | | | | 8 | | | | 36 | 60 | 54 | 42 | 20 | 19 * | 9 | 38 | |
| G13D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Dibromochloromethane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Dibromomethane | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Dichlorodifluoromethane | ug/l | G2 | 19 | | < 2 | | | | < 2 | | | | < 2 | | < 2 | 2 | < 2 | < 2 | | < 2 | |
| G13D | Ethylbenzene | ug/l | G2 | 5 | * | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Hexachlorobutadiene | ug/l | G2 | 100 | | < 10 | | | | < 2 | | | | < 10 | | < 2 | < 2 | < 2 | < 10 | | < 10 | |
| G13D | Iodomethane | ug/l | G2 | 10 | | < 5 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Isopropylbenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Methylene Chloride | ug/l | G2 | 8 | | < 1 | | | | < 5 | | | | < 5 | | < 5 | < 5 | 10 | < 5 | | < 5 | |
| G13D | Naphthalene | ug/l | G2 | 100 | | < 10 | | | | < 10 | | | | < 10 | | < 10 | < 10 | < 10 | < 10 | | < 10 | |
| G13D | n-Butylbenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | n-Propylbenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Oil (Hexane Soluble) | mg/l | G2 | 2.5 | | < 1 | | | | < 5 | | | | < 5 | | < 5 | < 5 | < 6 | < 5 | | < 5 | |
| G13D | Phenolics | ug/l | G2 | 100 | # | 13 | 13 | < 5 | < 5 | < 5 | 18 | < 5 | < 5 | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | |
| G13D | p-Isopropyltoluene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | sec-Butylbenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Styrene | ug/l | G2 | 10 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | tert-Butylbenzene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Tetrachloroethene | ug/l | G2 | 26 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Tetrahydrofuran | ug/l | G2 | 42 | * | < 5 | | | | < 5 | | | | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | |
| G13D | Toluene | ug/l | G2 | 20 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | < 1 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | < 5 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Trichloroethene | ug/l | G2 | 66 | | < 1 | | | | 2 | | | | 3 | 4 | 9 | 9 | 3 | 4 | | 6 | |
| G13D | Trichlorofluoromethane | ug/l | G2 | 5 | | < 2 | | | | < 1 | | | | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | |
| G13D | Vinyl acetate | ug/l | G2 | 10 | | < 5 | | | | < 5 | | | | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | |
| G13D | Vinyl chloride | ug/l | G2 | 17 | | < 2 | | | | < 2 | | | | 3 | 5 | 5 | 5 | 2 | 2 | | 3 | |
| G13D | Xylenes (Total) | ug/l | G2 | 5 | | < 3 | | | | < 3 | | | | < 2 | | < 2 | < 2 | < 2 | < 2 | | < 2 | |

Notes:
A highlighted cell indicates an exceedence.
* indicates Groundwater Management Zonce paramter
# indicates parameter being addressed by either pending Application
Log No. 2010-152 or Log No. 2010-373

# Table 1
## Winnebago Landfill
## Northern Unit Analytical
## G13D

| Well ID | Parameter | Units | GW List | AGQS | Addressed | 4thQtr04 | 1stQtr05 | 1stQtr05re | 2ndQtr05 | 2ndQtr05re | 3rdQtr05 | 4thQtr05 | 4thQtr05re | 1stQtr06 | 1stQtr06re | 2ndQtr06 | 3rdQtr06 | 4thQtr06 | 1stQtr07 | 2ndQtr07 | 2ndQtr07re |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G13D | Ammonia as N, dissolved | mg/l | G1 | 0.9 | * | 0.098 | < 0.09 | | 0.14 | | 0.24 | 0.1 | | 0.13 | | 0.65 | 0.2 | Q 0.28 | 0.24 | 0.45 | |
| G13D | Arsenic, Dissolved | ug/l | G1 | 2 | * | < 1 | < 1 | | < 1 | | < 1 | < 1 | | < 1 | | 1.1 | 1.1 | 1.4 | 1.1 | 1.6 | |
| G13D | Boron, Dissolved | ug/l | G1 | 98 | * | 80 | 56 | | 56 | | 54 | 43 | | 52 | | 55 | 64 | 65 | 59 | 74 | |
| G13D | Cadmium, Dissolved | ug/l | G1 | 5 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | |
| G13D | Chloride, Dissolved | mg/l | G1 | 87.511 | * | 91 | 84 | | 92 | | 98 | 86 | | 110 | | 90 | 94 | 100 | 97 | 40 | |
| G13D | Chromium, dissolved | ug/l | G1 | 12 | | | | | | | | | | | | | | | | | |
| G13D | Cyanide, Total | mg/l | G1 | 0.34 | | < 0.005 | Q< 0.005 | | < 0.005 | | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | |
| G13D | Lead, Dissolved | ug/l | G1 | 4 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | |
| G13D | Magnesium, dissolved | mg/l | G1 | 170.41 | | | | | | | | | | | | | | | | | |
| G13D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | |
| G13D | Nitrate as N, dissolved | mg/l | G1 | 11.74 | * | < 0.02 | < 0.02 | | < 0.02 | | < 0.02 | H< 0.02 | | < 0.02 | | 2.1 | < 0.02 | < 0.02 | < 0.02 | H 3.8 | |
| G13D | pH (field) | units | G1 | 5.4 - 8.1 | | 6.7 | 6.51 | 6.63 | 6.5 | | 6.5 | 6.86 | 7.11 | 6.67 | 6.79 | 6.62 | 6.94 | 6.9 | 6.77 | 7.15 | |
| G13D | Specific Conductance (field) | umhos | G1 | 2386.55 | | 1485 | 1470 | 1415 | 1460 | | 1460 | 987 | 1299 | 1462 | 1120 | 1422 | 1310 | 830 | 1523 | 1000 | |
| G13D | Sulfate, Dissolved | mg/l | G1 | 119.5 | # | 22 | 20 | | 18 | | 15 | 7.9 | | 8.5 | | 41 | 41 | 32 | 16 | 250 | 180 |
| G13D | Total Dissolved Solids, filtered | mg/l | G1 | 1755.8 | | 1000 | 990 | | 990 | | 1000 | 1100 | | 1000 | | 930 | 500 | 970 | 1000 | 1000 | |
| G13D | Zinc, Dissolved | ug/l | G1 | 236072.4 | | < 6 | < 6 | | < 6 | | < 6 | < 6 | | < 6 | | 130 | 16 | 18 | 31 | 20000 | |
| G13D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,1,1-Trichloroethane | ug/l | G2 | 12 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,1-Dichloroethane | ug/l | G2 | 31 | | | | | 4 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,1-Dichloroethene | ug/l | G2 | 2.5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,1-Dichloropropene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | * | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | * | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | | | < 0.05 | | | | | | | < 0.05 | | | | < 2 | |
| G13D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | | | < 0.05 | | | | | | | < 0.05 | | | | < 0.5 | |
| G13D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,2-Dichloroethane | ug/l | G2 | 2.5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,2-Dichloropropane | ug/l | G2 | 6 | | | | | 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,3-Dichloropropane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 1,3-Dichloropropene | ug/l | G2 | 5 | | | | | < 2 | | | | | | | < 2 | | | | < 2 | |
| G13D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | * | | | | 7 | | | | | | | < 1 | | | | < 1 | |
| G13D | 2,2-Dichloropropane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 2-Butanone (MEK) | ug/l | G2 | 5 | | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | 2-Chlorotoluene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 2-Hexanone (MBK) | ug/l | G2 | 10 | | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | 4-Chlorotoluene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | Acetone | ug/l | G2 | 10 | # | | | | < 10 | | | | | | | < 10 | | | | < 10 | |
| G13D | Acrylonitrile | ug/l | G2 | 10 | | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | Benzene | ug/l | G2 | 2.8 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Bromobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Bromochloromethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Bromodichloromethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Bromoform | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Bromomethane | ug/l | G2 | 10 | | | | | < 2 | | | | | | | < 2 | | | | < 2 | |
| G13D | Carbon disulfide | ug/l | G2 | 5 | | | | | 2 | | | | | | | < 1 | | | | < 1 | |
| G13D | Carbon tetrachloride | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Chlorobenzene | ug/l | G2 | 5 | # | | | | 7 | B | | | | | | < 1 | | | | < 1 | |
| G13D | Chloroethane | ug/l | G2 | 10 | | | | | < 2 | | | | | | | < 2 | | | | < 2 | |
| G13D | Chloroform | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Chloromethane | ug/l | G2 | 10 | | | | | < 2 | | | | | | | < 2 | | | | < 2 | |
| G13D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | 5 | | | | | | | < 1 | | | | < 1 | |
| G13D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Dibromochloromethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Dibromomethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Dichlorodifluoromethane | ug/l | G2 | 19 | | | | | < 2 | | | | | | | < 2 | | | | < 2 | |
| G13D | Ethylbenzene | ug/l | G2 | 5 | * | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Hexachlorobutadiene | ug/l | G2 | 100 | | | | | < 10 | | | | | | | < 10 | | | | < 2 | |
| G13D | Iodomethane | ug/l | G2 | 10 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Isopropylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Methylene Chloride | ug/l | G2 | 8 | | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | Naphthalene | ug/l | G2 | 100 | | | | | < 10 | | | | | | | < 10 | | | | < 10 | |
| G13D | n-Butylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | n-Propylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Oil (Hexane Soluble) | mg/l | G2 | 2.5 | | | | | < 5 | | | | | | | < 5 | | | | P,< 5 | |
| G13D | Phenolics | ug/l | G2 | 100 | # | < 5 | < 5 | | < 5 | | < 5 | < 5 | | < 5 | | < 5 | < 5 | < 5 | < 5 | < 5 | |
| G13D | p-Isopropyltoluene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | sec-Butylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Styrene | ug/l | G2 | 10 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | tert-Butylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Tetrachloroethene | ug/l | G2 | 26 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Tetrahydrofuran | ug/l | G2 | 42 | * | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | Toluene | ug/l | G2 | 20 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Trichloroethene | ug/l | G2 | 66 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Trichlorofluoromethane | ug/l | G2 | 5 | | | | | < 1 | | | | | | | < 1 | | | | < 1 | |
| G13D | Vinyl acetate | ug/l | G2 | 10 | | | | | < 5 | | | | | | | < 5 | | | | < 5 | |
| G13D | Vinyl chloride | ug/l | G2 | 17 | | | | | < 2 | | | | | | | < 2 | | | | < 2 | |
| G13D | Xylenes (Total) | ug/l | G2 | 5 | | | | | < 2 | | | | | | | < 2 | | | | < 2 | |

Notes:
A highlighted cell indicates an exceedence.
* indicates Groundwater Management Zonce paramter
# indicates parameter being addressed by either pending Application
Log No. 2010-152 or Log No. 2010-373

**Table 1**
**Winnebago Landfill**
**Northern Unit Analytical**
**G13D**

| Well ID | Parameter | Units | GW List | AGQS | Addressed | 3rdQtr07 | 4thQtr07 | 4thQtr07re | 1stQtr08 | 1stQtr08re | 2ndQtr08 | 3rdQtr08 | 4thQtr08 | 1stQtr09 | 2ndQtr09 | 2ndQtr09re | 3rdQtr09 | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G13D | Ammonia as N, dissolved | mg/l | G1 | 0.9 | * | 0.12 | 0.28 | | < 0.09 | | 0.36 | 5.8 | 8.4 | 15 | 70 | | 32 | 23 | 15 | 250 | 200 |
| G13D | Arsenic, Dissolved | ug/l | G1 | 2 | * | 15 | 2.3 | | 1.8 | | 9.5 | 13 | 3.8 | 3.8 | 12 | | 6.9 | 9.1 | < 1 | 43 | 43 |
| G13D | Boron, Dissolved | ug/l | G1 | 98 | * | 220 | 100 | | 110 | | 130 | 410 | 340 | 440 | 1800 | | 2700 | 1900 | 250 | 7100 | 8500 |
| G13D | Cadmium, Dissolved | ug/l | G1 | 5 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 |
| G13D | Chloride, Dissolved | mg/l | G1 | 87.511 | * | 60 | 100 | | 34 | | 19 | 37 | 67 | 110 | 260 | | 180 | 190 | 170 | 530 | 720 |
| G13D | Chromium, dissolved | ug/l | G1 | 12 | | | | | | | | < 4 | 4.4 | 5.3 | 11 | | 16 | 12 | < 4 | 72 | 70 |
| G13D | Cyanide, Total | mg/l | G1 | 0.34 | | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | Q< 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.0051 |
| G13D | Lead, Dissolved | ug/l | G1 | 4 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | 4 | 7.9 |
| G13D | Magnesium, dissolved | mg/l | G1 | 170.41 | | | | | | | | 79 | 93 | 150 | 160 | | 110 | 140 | 33 | 190 | 160 |
| G13D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| G13D | Nitrate as N, dissolved | mg/l | G1 | 11.74 | * | 0.18 | 0.36 | | 1.5 | | < 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | | < 0.02 | 0.075 | 0.022 | < 0.2 | 0.73 |
| G13D | pH (field) | units | G1 | 5.4 - 8.1 | | 7.21 | 6.55 | 6.49 | 6.85 | 6.47 | 7.28 | 6.58 | 6.93 | 6.97 | 6.86 | | 6.91 | 6.88 | 7.18 | 6.94 | 7.17 |
| G13D | Specific Conductance (field) | umhos | G1 | 2386.55 | | 1141 | 1058 | 1396 | 1975 | 920 | 506 | 688 | 693 | 1667 | 3750 | | 2240 | 1047 | 1437 | 3750 | 1409 |
| G13D | Sulfate, Dissolved | mg/l | G1 | 119.5 | # | 220 | 130 | 330 | 420 | 420 | 390 | 180 | 170 | 570 | 580 | | 70 | 280 | 310 | 270 | 360 |
| G13D | Total Dissolved Solids, filtered | mg/l | G1 | 1755.8 | | 1000 | 1000 | | 1100 | | 1100 | 1100 | 1200 | 1800 | 2500 | | 1700 | 1800 | 1700 | 4200 | 3700 |
| G13D | Zinc, Dissolved | ug/l | G1 | 236072.4 | | 7500 | 320 | | 1400 | | 2800 | 100 | 45 | 170 | 62 | | 34 | 470 | < 6 | 1700 | 4800 |
| G13D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,1,1-Trichloroethane | ug/l | G2 | 12 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,1-Dichloroethane | ug/l | G2 | 31 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,1-Dichloroethene | ug/l | G2 | 2.5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,1-Dichloropropene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | * | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | * | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | | | | | < 5 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | | | | | < 2 | | < 0.05 | | < 0.05 | | | < 0.05 | | < 0.05 | |
| G13D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | | | | | < 0.5 | | < 0.05 | | < 0.05 | | | < 0.05 | | < 0.05 | |
| G13D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,2-Dichloroethane | ug/l | G2 | 2.5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,2-Dichloropropane | ug/l | G2 | 6 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,3-Dichloropropane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | | < 2 | | | | < 1 | | | < 1 | | < 1 | |
| G13D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | * | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 2,2-Dichloropropane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 2-Butanone (MEK) | ug/l | G2 | 5 | | | | | | | < 5 | | < 5 | | < 5 | | | < 5 | | < 5 | |
| G13D | 2-Chlorotoluene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 2-Hexanone (MBK) | ug/l | G2 | 10 | | | | | | | < 5 | | < 5 | | < 1 | | | < 1 | | < 1 | |
| G13D | 4-Chlorotoluene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | | | | | < 5 | | < 5 | | < 5 | | | < 5 | | < 5 | |
| G13D | Acetone | ug/l | G2 | 10 | # | | | | | | < 10 | | < 10 | | 18 | < 5 | | < 5 | | 13 | |
| G13D | Acrylonitrile | ug/l | G2 | 10 | | | | | | | < 5 | | < 50 | | < 5 | | | < 5 | | < 5 | |
| G13D | Benzene | ug/l | G2 | 2.8 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Bromobenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Bromochloromethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Bromodichloromethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Bromoform | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Bromomethane | ug/l | G2 | 10 | | | | | | | < 2 | | < 2 | | < 2 | | | < 2 | | < 2 | |
| G13D | Carbon disulfide | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | 3.3 | < 1 | 1.5 | |
| G13D | Carbon tetrachloride | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Chlorobenzene | ug/l | G2 | 5 | # | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | 1.7 | |
| G13D | Chloroethane | ug/l | G2 | 10 | | | | | | | < 2 | | < 2 | | < 2 | | | < 2 | | < 2 | |
| G13D | Chloroform | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Chloromethane | ug/l | G2 | 10 | | | | | | | < 2 | | < 2 | | < 2 | | | < 2 | | < 2 | |
| G13D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Dibromochloromethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Dibromomethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Dichlorodifluoromethane | ug/l | G2 | 19 | | | | | | | < 2 | | < 2 | | < 1 | | | < 1 | | < 1 | |
| G13D | Ethylbenzene | ug/l | G2 | 5 | * | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Hexachlorobutadiene | ug/l | G2 | 100 | | | | | | | < 2 | | < 2 | | < 2 | | | < 2 | | < 2 | |
| G13D | Iodomethane | ug/l | G2 | 10 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Isopropylbenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Methylene Chloride | ug/l | G2 | 8 | | | | | | | < 5 | | < 5 | | < 2.5 | | | < 2.5 | | < 2.5 | |
| G13D | Naphthalene | ug/l | G2 | 100 | | | | | | | < 10 | | < 5 | | < 5 | | | < 5 | | < 5 | |
| G13D | n-Butylbenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | n-Propylbenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Oil (Hexane Soluble) | mg/l | G2 | 2.5 | | | | | | | < 6 | | < 5 | | P,< 5 | | | < 6 | | < 5 | |
| G13D | Phenolics | ug/l | G2 | 100 | # | < 5 | < 5 | | < 5 | | 8.5 | < 5 | < 5 | | 18 | 16 | | < 5 | | 49 | |
| G13D | p-Isopropyltoluene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | sec-Butylbenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Styrene | ug/l | G2 | 10 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | tert-Butylbenzene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Tetrachloroethene | ug/l | G2 | 26 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Tetrahydrofuran | ug/l | G2 | 42 | * | | | | | | < 5 | | < 20 | | 110 | | | < 2.5 | | 63 | |
| G13D | Toluene | ug/l | G2 | 20 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Trichloroethene | ug/l | G2 | 66 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Trichlorofluoromethane | ug/l | G2 | 5 | | | | | | | < 1 | | < 1 | | < 1 | | | < 1 | | < 1 | |
| G13D | Vinyl acetate | ug/l | G2 | 10 | | | | | | | < 5 | | < 5 | | < 1 | | | < 1 | | < 1 | |
| G13D | Vinyl chloride | ug/l | G2 | 17 | | | | | | | < 2 | | < 2 | | < 2 | | | < 2 | | < 2 | |
| G13D | Xylenes (Total) | ug/l | G2 | 5 | | | | | | | < 2 | | < 2 | | < 1 | | | < 1 | | < 1 | |

Notes:
A highlighted cell indicates an exceedence.
* indicates Groundwater Management Zonce paramter
# indicates parameter being addressed by either pending Application Log No. 2010-152 or Log No. 2010-373

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 2nd Qtr 98 | 1st Qtr 99 | 2nd Qtr 99 | 3rd Qtr 99 | 4th Qtr 99 | 1st Qtr 00 | 2nd Qtr 00 | 3rd Qtr 00 | 4th Qtr 00 | 1st Qtr 01 | 2nd Qtr 01 | 3rd Qtr 01 | 4th Qtr 01 | 1st Qtr 02 | 2nd Qtr 02 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R22S | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | 0.157 | < 0.1 | < 0.062 | < 0.1 | < 0.1 | < 0.1 | < 0.062 | < 0.045 | 0.12 | < 0.09 | < 0.1 | < 0.09 | < 0.05 | < 0.05 | < 0.05 |
| R22S | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | < 2 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 3 | < 7.1 | < 3 | < 1 | < 1 | 2 |
| R22S | Boron, Dissolved | ug/l | G1 | 147.619 | | | < 110 | < 100 | 22 | < 100 | < 100 | < 100 | 20 | 22 | 29 | 28 | 23 | 25 | 44 | 23 | 29 |
| R22S | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | < 0.44 | < 1 | < 0.3 | < 1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 0.3 | < 1 | < 1 | < 1 |
| R22S | Chloride, Dissolved | mg/l | G1 | 200 | | # | 287 | 180 | 200 | 260 | 260 | 250 | 250 | 310 | 270 | 280 | 320 | 310 | 8.5 | 290 | 360 |
| R22S | Chromium, dissolved | ug/l | G1 | 19 | | # | | | | | | | | | | | | | | | |
| R22S | Cyanide, Total | mg/l | G1 | 0.005 | | | < 0.005 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.07 | < 0.01 | < 0.0143 | < 0.01 | < 0.005 | < 0.005 | < 0.005 |
| R22S | Lead, Dissolved | ug/l | G1 | 1 | | | < 3 | < 3 | < 0.73 | < 3 | < 3 | < 3 | < 0.73 | < 1.6 | < 1.6 | < 1.6 | < 1.6 | < 1.6 | < 1 | < 1 | < 1 |
| R22S | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | | | | | | | |
| R22S | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | |
| R22S | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | 0.458 | 0.37 | < 0.05 | < 0.2 | < 0.2 | < 0.2 | 0.46 | 0.65 | < 0.2 | < 0.2 | 4.5 | < 0.2 | 2.1 | 0.081 | 0.065 |
| R22S | pH (field) | units | G1 | 4.9 - 9.8 | | | | 7.43 | 7.17 | 7.42 | 7.32 | 7.22 | 8.13 | 7.46 | 7.15 | 6.9 | 7.5 | 7.82 | 7.29 | 7.14 | 7.47 |
| R22S | Specific Conductance (field) | umhos | G1 | 2029.99 | | | | 1220 | 1290 | 1430 | 1849 | 132 | 2008 | 792 | 1482 | 1542 | 1332 | 2750 | 620 | 1140 | 950 |
| R22S | Sulfate, Dissolved | mg/l | G1 | 420 | | | 35 | 50 | 44 | 36 | 31 | 28 | 30 | 26 | 29 | 34 | 31 | 33 | 49 | 30 | 31 |
| R22S | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | 2105.394 | | 834 | 680 | 720 | 920 | 760 | 720 | 930 | 870 | 830 | 760 | 890 | 1200 | 420 | 900 | 1100 |
| R22S | Zinc, Dissolved | ug/l | G1 | 204.21 | | | 29.8 | < 20 | < 20 | 22 | < 20 | < 20 | 35 | < 20 | < 20 | < 20 | 80 | < 20 | < 6 | 14 | 12 |
| R22S | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,1-Dichloroethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,1-Dichloroethene | ug/l | G2 | 5 | | | < 2 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,1-Dichloropropene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 5 |
| R22S | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | < 5 | | < 2 | | | | < 2 | | | | < 2 | | | | < 0.05 |
| R22S | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1.1 | | | | < 0.05 |
| R22S | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,2-Dichloroethane | ug/l | G2 | 5 | | | < 2 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,2-Dichloropropane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,3-Dichloropropane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 1,3-Dichloropropene | ug/l | G2 | 5 | | | | | < 1 | | | | | | | | < 1 | | | | < 2 |
| R22S | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 2,2-Dichloropropane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 2-Butanone (MEK) | ug/l | G2 | 10 | | | < 5 | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R22S | 2-Chlorotoluene | ug/l | G2 | 1 | | | < 1 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | < 10 | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R22S | 4-Chlorotoluene | ug/l | G2 | 1 | | | < 1 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | < 10 | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R22S | Acetone | ug/l | G2 | 100 | | | < 10 | | < 5 | | | | < 5 | | | | < 5 | | | | < 10 |
| R22S | Acrylonitrile | ug/l | G2 | 10 | | | < 10 | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R22S | Benzene | ug/l | G2 | 5 | | | < 2 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Bromobenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Bromochloromethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Bromodichloromethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Bromoform | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Bromomethane | ug/l | G2 | 10 | | | < 5 | | < 1 | | | | < 2 | | | | < 2 | | | | < 2 |
| R22S | Carbon disulfide | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Carbon tetrachloride | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Chlorobenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Chloroethane | ug/l | G2 | 10 | | | < 5 | | < 2 | | | | < 2 | | | | < 2 | | | | < 2 |
| R22S | Chloroform | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Chloromethane | ug/l | G2 | 10 | | | < 5 | | < 2 | | | | < 2 | | | | < 2 | | | | < 2 |
| R22S | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Dibromochloromethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Dibromomethane | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Dichlorodifluoromethane | ug/l | G2 | 5 | | | < 5 | | < 2 | | | | < 1 | | | | < 2 | | | | < 2 |
| R22S | Ethylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Hexachlorobutadiene | ug/l | G2 | 10 | | | < 5 | | < 11 | | | | < 10 | | | | < 10 | | | | < 10 |
| R22S | Iodomethane | ug/l | G2 | 1 | | | < 1 | | < 5 | | | | < 5 | | | | < 1 | | | | < 1 |
| R22S | Isopropylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Methylene Chloride | ug/l | G2 | 10 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 5 |
| R22S | Naphthalene | ug/l | G2 | 10 | | | < 10 | | < 11 | | | | < 10 | | | | < 10 | | | | < 10 |
| R22S | n-Butylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | n-Propylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | < 5 | | < 0.1 | | | | < 1 | | | | < 1 | | | | < 5 |
| R22S | Phenolics | ug/l | G2 | 5 | | | < 10 | 28 | 23 | 24 | < 10 | < 10 | < 10 | 15 | 120 | 22 | < 10 | < 10 | < 1 | < 5 | < 5 |
| R22S | p-Isopropyltoluene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | sec-Butylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Styrene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | tert-Butylbenzene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Tetrachloroethene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Tetrahydrofuran | ug/l | G2 | 7 | | | < 5 | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R22S | Toluene | ug/l | G2 | 5 | | | < 5 | | < 10 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | < 5 | | < 5 | | | | < 5 | | | | < 5 | | | | < 1 |
| R22S | Trichloroethene | ug/l | G2 | 10 | | | < 5 | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R22S | Trichlorofluoromethane | ug/l | G2 | 5 | | | < 5 | | < 2 | | | | < 1 | | | | < 2 | | | | < 1 |
| R22S | Vinyl acetate | ug/l | G2 | 10 | | | < 10 | | < 5 | | | | < 5 | | | | < 1 | | | | < 5 |
| R22S | Vinyl chloride | ug/l | G2 | 2 | | | < 2 | | < 2 | | | | < 2 | | | | < 2 | | | | < 2 |
| R22S | Xylenes (Total) | ug/l | G2 | 5 | | | < 10 | | < 3 | | | | < 3 | | | | < 3 | | | | < 3 |

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 2nd Qtr 98 | 1st Qtr 99 | 2nd Qtr 99 | 3rd Qtr 99 | 4th Qtr 99 | 1st Qtr 00 | 2nd Qtr 00 | 3rd Qtr 00 | 4th Qtr 00 | 1st Qtr 01 | 2nd Qtr 01 | 3rd Qtr 01 | 4th Qtr 01 | 1st Qtr 02 | 2nd Qtr 02 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R28D | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | | < 0.1 | < 0.062 | < 0.1 | < 0.1 | < 0.1 | < 0.062 | < 0.1 | < 0.1 | < 0.09 | < 0.1 | < 0.09 | < 0.05 | < 0.05 | 1.3 |
| R28D | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | | < 3 | < 3 | < 3 | | < 3 | < 3 | < 3 | < 3 | < 3 | < 7.1 | < 3 | < 1 | < 1 | 2 |
| R28D | Boron, Dissolved | ug/l | G1 | 147.619 | | | | < 100 | 160 | < 100 | < 100 | < 100 | 17 | 17 | 21 | 27 | 25 | 20 | 37 | 35 | 93 |
| R28D | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | | < 1 | < 0.3 | < 1 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 0.3 | < 1 | < 1 | < 1 |
| R28D | Chloride, Dissolved | mg/l | G1 | 200 | | | | 72 | 61 | 50 | 31 | 28 | 40 | 36 | 42 | 33 | 44 | 20 | 29 | 12 | 64 |
| R28D | Chromium, dissolved | ug/l | G1 | 19 | | | | | | | | | | | | | | | | | |
| R28D | Cyanide, Total | mg/l | G1 | 0.005 | | | | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.0143 | < 0.01 | < 0.005 | 0.032 | < 0.005 |
| R28D | Lead, Dissolved | ug/l | G1 | 1 | | | | < 3 | < 0.73 | < 3 | < 3 | < 3 | < 0.73 | 3.1 | < 1.6 | < 1.6 | < 1.6 | < 1.6 | < 1 | < 1 | < 1 |
| R28D | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | | | | | | | |
| R28D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | |
| R28D | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | | 4 | 1.9 | 3.5 | 4.8 | 5.5 | 8 | 7.1 | 8.2 | 3.8 | 1.8 | 2.2 | 2.9 | 0.71 | < 0.02 |
| R28D | pH (field) | units | G1 | 4.9 - 9.8 | | | | 6.99 | 7.7 | 7.19 | 7.13 | 6.44 | 7.03 | 7.52 | 6.41 | 6.92 | 7.2 | 7.43 | 7.11 | 6.7 | 6.65 |
| R28D | Specific Conductance (field) | umhos | G1 | 2029.99 | | | | 1060 | | 1045 | 473 | 915 | 953 | 914.3 | 1072 | 1050 | 1270 | 905 | 770 | 961 | 1075 |
| R28D | Sulfate, Dissolved | mg/l | G1 | 420 | | | | 45 | 34 | 43 | 43 | 39 | 45 | 48 | 61 | 120 | 200 | 76 | 77 | 25 | 94 |
| R28D | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | | | | 610 | 690 | 690 | 540 | 530 | 570 | 610 | 640 | 640 | 860 | 650 | 550 | 890 | 790 |
| R28D | Zinc, Dissolved | ug/l | G1 | 204.21 | | | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | 31 | < 20 | < 20 | 17 | 25 | 12 |
| R28D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,1-Dichloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,1-Dichloroethene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,1-Dichloropropene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 5 |
| R28D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | | | < 2 | | | | < 2 | | | | < 2 | | | | < 0.05 |
| R28D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1.1 | | | | < 0.05 |
| R28D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,2-Dichloroethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,2-Dichloropropane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,3-Dichloropropane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | | | | | | | | < 1 | | | | < 2 |
| R28D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 2,2-Dichloropropane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 2-Butanone (MEK) | ug/l | G2 | 10 | | | | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R28D | 2-Chlorotoluene | ug/l | G2 | 1 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R28D | 4-Chlorotoluene | ug/l | G2 | 1 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R28D | Acetone | ug/l | G2 | 100 | | | | | < 5 | | | | < 5 | | | | < 5 | | | | < 10 |
| R28D | Acrylonitrile | ug/l | G2 | 10 | | | | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R28D | Benzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Bromobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Bromochloromethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Bromodichloromethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Bromoform | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Bromomethane | ug/l | G2 | 10 | | | | | < 2 | | | | < 2 | | | | < 2 | | | | < 2 |
| R28D | Carbon disulfide | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Carbon tetrachloride | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Chlorobenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Chloroethane | ug/l | G2 | 10 | | | | | < 2 | | | | < 2 | | | | < 2 | | | | < 2 |
| R28D | Chloroform | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Chloromethane | ug/l | G2 | 10 | | | | | < 2 | | | | < 2 | | | | < 2 | | | | < 2 |
| R28D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Dibromochloromethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Dibromomethane | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Dichlorodifluoromethane | ug/l | G2 | 5 | | | | | < 2 | | | | < 1 | | | | < 2 | | | | < 2 |
| R28D | Ethylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Hexachlorobutadiene | ug/l | G2 | 10 | | | | | < 10 | | | | < 10 | | | | < 10 | | | | < 10 |
| R28D | Iodomethane | ug/l | G2 | 1 | | | | | < 5 | | < 50 | | < 5 | | | | < 1 | | | | < 1 |
| R28D | Isopropylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Methylene Chloride | ug/l | G2 | 10 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 5 |
| R28D | Naphthalene | ug/l | G2 | 10 | | | | | < 10 | | | | < 10 | | | | < 10 | | | | < 10 |
| R28D | n-Butylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | n-Propylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | | | < 0.1 | | | | < 1 | | | | < 1 | | | | < 6 |
| R28D | Phenolics | ug/l | G2 | 5 | | | | 24 | < 10 | < 10 | 83 | < 50 | < 10 | 56 | 140 | < 10 | 13 | 70 | < 5 | 8 | < 5 |
| R28D | p-Isopropyltoluene | ug/l | G2 | 5 | | | | | | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | sec-Butylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Styrene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | tert-Butylbenzene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Tetrachloroethene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Tetrahydrofuran | ug/l | G2 | 7 | | | | | < 5 | | | | < 5 | | | | < 5 | | | | < 5 |
| R28D | Toluene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | | | < 5 | | | | < 5 | | | | < 5 | | | | < 1 |
| R28D | Trichloroethene | ug/l | G2 | 10 | | | | | < 1 | | | | < 1 | | | | < 1 | | | | < 1 |
| R28D | Trichlorofluoromethane | ug/l | G2 | 5 | | | | | < 2 | | | | < 1 | | | | < 2 | | | | < 1 |
| R28D | Vinyl acetate | ug/l | G2 | 10 | | | | | < 5 | | | | < 5 | | | | < 1 | | | | < 5 |
| R28D | Vinyl chloride | ug/l | G2 | 2 | | | | | < 2 | | | | < 2 | | | | < 2 | | | | < 2 |
| R28D | Xylenes (Total) | ug/l | G2 | 5 | | | | | < 3 | | | | < 3 | | | | < 3 | | | | < 3 |

Notes:
A highlighted cell indicates an exceedence.
# indicates parameter being addressed by either pending Application
Log No. 2010-152 or Log No. 2010-373.

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 3rdQtr02 | 4thQtr02 | 1stQtr03 | 2ndQtr03 | 2ndQtr03re | 3rdQtr03 | 4thQtr03 | 1stQtr04 | 2ndQtr04 | 2ndQtr04re | 3rdQtr04 | 3rdQtr04re | 4thQtr04 | 1stQtr05 | 1stQtr05re |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R22S | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | 0.2 | < 0.05 | < 0.05 | < 0.05 | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | < 0.09 | | < 0.09 | < 0.09 | |
| R22S | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | 2 | < 1 | < 1 | < 1 | | < 1 | 2.5 | 2.3 | 2.2 | | 2.8 | | 2.3 | 2.3 | |
| R22S | Boron, Dissolved | ug/l | G1 | 147.619 | | | 12 | 39 | 30 | 25 | | 30 | 41 | 42 | 21 | | 22 | | 12 | 14 | |
| R22S | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | | < 1 | < 1 | |
| R22S | Chloride, Dissolved | mg/l | G1 | 200 | | # | 310 | 290 | 390 | 360 | | 430 | 390 | 390 | 430 | 480 | 440 | 480 | 450 | 440 | 480 |
| R22S | Chromium, dissolved | ug/l | G1 | 19 | | # | | | | | | | | | | | | | | | |
| R22S | Cyanide, Total | mg/l | G1 | 0.005 | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | |
| R22S | Lead, Dissolved | ug/l | G1 | 1 | | | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | | < 1 | < 1 | |
| R22S | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | | | | | | | |
| R22S | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | |
| R22S | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | < 0.02 | 0.054 | < 0.02 | < 0.02 | | < 0.02 | < 0.02 | < 0.02 | < 0.02 | | < 0.02 | | < 0.02 | 0.041 | |
| R22S | pH (field) | units | G1 | 4.9 - 9.8 | | | 9.82 | 6.94 | 7.19 | 6.99 | | 7.32 | 7.61 | 7.14 | 7.13 | 6.81 | 7.03 | 7.26 | 7.26 | 10.2 | 6.58 |
| R22S | Specific Conductance (field) | umhos | G1 | 2029.99 | | | 1230 | 1230 | 1290 | 1190 | | 1290 | 1140 | 1470 | 1360 | 1720 | 1680 | 1640 | 1300 | 970 | 1860 |
| R22S | Sulfate, Dissolved | mg/l | G1 | 420 | | | 30 | 30 | 28 | 25 | | 29 | 27 | 26 | 24 | | 27 | | 25 | 28 | |
| R22S | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | 2105.394 | | 1100 | 890 | 950 | 1200 | | 1300 | 1000 | 1100 | 1100 | | 1100 | | 1200 | 1100 | |
| R22S | Zinc, Dissolved | ug/l | G1 | 204.21 | | | 39 | 15 | 44 | < 6 | | < 6 | < 6 | < 6 | < 6 | | < 6 | | < 6 | < 6 | |
| R22S | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,1-Dichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,1-Dichloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,1-Dichloropropene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | | | | < 0.05 | | | | | < 0.05 | | | | | | |
| R22S | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | | | | < 0.05 | | | | | < 0.05 | | | | | | |
| R22S | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,2-Dichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,2-Dichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,3-Dichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R22S | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 2,2-Dichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 2-Butanone (MEK) | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | 2-Chlorotoluene | ug/l | G2 | 1 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | 4-Chlorotoluene | ug/l | G2 | 1 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | Acetone | ug/l | G2 | 100 | | | | | | < 10 | | | | | < 10 | | | | | | |
| R22S | Acrylonitrile | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | Benzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Bromobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Bromochloromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Bromodichloromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Bromoform | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Bromomethane | ug/l | G2 | 10 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R22S | Carbon disulfide | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Carbon tetrachloride | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Chlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Chloroethane | ug/l | G2 | 10 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R22S | Chloroform | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Chloromethane | ug/l | G2 | 10 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R22S | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Dibromochloromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Dibromomethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Dichlorodifluoromethane | ug/l | G2 | 5 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R22S | Ethylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Hexachlorobutadiene | ug/l | G2 | 10 | | | | | | < 10 | | | | | < 10 | | | | | | |
| R22S | Iodomethane | ug/l | G2 | 1 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Isopropylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Methylene Chloride | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | Naphthalene | ug/l | G2 | 10 | | | | | | < 10 | | | | | < 10 | | | | | | |
| R22S | n-Butylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | n-Propylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | Phenolics | ug/l | G2 | 5 | | | < 5 | < 5 | < 5 | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | | < 5 | < 5 | |
| R22S | p-Isopropyltoluene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | sec-Butylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Styrene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | tert-Butylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Tetrachloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Tetrahydrofuran | ug/l | G2 | 7 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | Toluene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Trichloroethene | ug/l | G2 | 10 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Trichlorofluoromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R22S | Vinyl acetate | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R22S | Vinyl chloride | ug/l | G2 | 2 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R22S | Xylenes (Total) | ug/l | G2 | 5 | | | | | | < 2 | | | | | < 2 | | | | | | |

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 3rdQtr02 | 4thQtr02 | 1stQtr03 | 2ndQtr03 | 2ndQtr03re | 3rdQtr03 | 4thQtr03 | 1stQtr04 | 2ndQtr04 | 2ndQtr04re | 3rdQtr04 | 3rdQtr04re | 4thQtr04 | 1stQtr05 | 1stQtr05re |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R28D | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | 1.6 | 1.3 | < 0.05 | < 0.05 | | 0.1 | < 0.05 | < 0.05 | < 0.05 | | < 0.09 | | < 0.09 | < 0.09 | |
| R28D | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | | < 1 | < 1 | |
| R28D | Boron, Dissolved | ug/l | G1 | 147.619 | | | 54 | 52 | 50 | 36 | | 24 | 25 | 35 | 20 | | 20 | | < 10 | 10 | |
| R28D | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | | < 1 | < 1 | |
| R28D | Chloride, Dissolved | mg/l | G1 | 200 | | | 35 | 32 | 33 | 40 | | 41 | 40 | 37 | 38 | | 39 | | 38 | 42 | |
| R28D | Chromium, dissolved | ug/l | G1 | 19 | | | | | | | | | | | | | | | | | |
| R28D | Cyanide, Total | mg/l | G1 | 0.005 | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | |
| R28D | Lead, Dissolved | ug/l | G1 | 1 | | | < 1 | < 1 | < 1 | < 1 | | < 1 | < 1 | < 1 | < 1 | | < 1 | | < 1 | < 1 | |
| R28D | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | | | | | | | |
| R28D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | |
| R28D | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | 0.24 | 4.4 | 6 | 8.9 | | 9.5 | 9.1 | 9.6 | 10 | | 9.9 | | 9.2 | 9.2 | |
| R28D | pH (field) | units | G1 | 4.9 - 9.8 | | | 6.85 | 6.88 | 6.94 | 7.09 | | 7.08 | 7.03 | 7.07 | 7.66 | | 7.11 | | 7.06 | 7.7 | |
| R28D | Specific Conductance (field) | umhos | G1 | 2029.99 | | | 999 | 615 | 812 | 694 | | 672 | 816 | 664 | 690 | | 793 | | 808 | 806 | |
| R28D | Sulfate, Dissolved | mg/l | G1 | 420 | | | 170 | 45 | 39 | 36 | | 41 | 40 | 38 | 37 | | 39 | | 45 | 48 | |
| R28D | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | | | 760 | 490 | 520 | 500 | | 510 | 530 | 450 | 410 | | 450 | | 540 | 520 | |
| R28D | Zinc, Dissolved | ug/l | G1 | 204.21 | | | 31 | 26 | 28 | < 6 | | < 6 | < 6 | < 6 | < 6 | | < 6 | | < 6 | < 6 | |
| R28D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,1-Dichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,1-Dichloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,1-Dichloropropene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R28D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | | | | < 0.05 | | | | | < 0.05 | | | | | | |
| R28D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | | | | < 0.05 | | | | | < 0.05 | | | | | | |
| R28D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,2-Dichloroethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,2-Dichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,3-Dichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R28D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 2,2-Dichloropropane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 2-Butanone (MEK) | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R28D | 2-Chlorotoluene | ug/l | G2 | 1 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R28D | 4-Chlorotoluene | ug/l | G2 | 1 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R28D | Acetone | ug/l | G2 | 100 | | | | | | < 10 | | | | | < 10 | | | | | | |
| R28D | Acrylonitrile | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R28D | Benzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Bromobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Bromochloromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Bromodichloromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Bromoform | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Bromomethane | ug/l | G2 | 10 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R28D | Carbon disulfide | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Carbon tetrachloride | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Chlorobenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Chloroethane | ug/l | G2 | 10 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R28D | Chloroform | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Chloromethane | ug/l | G2 | 10 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R28D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Dibromochloromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Dibromomethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Dichlorodifluoromethane | ug/l | G2 | 5 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R28D | Ethylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Hexachlorobutadiene | ug/l | G2 | 10 | | | | | | < 10 | | | | | < 10 | | | | | | |
| R28D | Iodomethane | ug/l | G2 | 1 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Isopropylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Methylene Chloride | ug/l | G2 | 10 | | | | | | 10 | < 5 | | | | < 5 | | | | | | |
| R28D | Naphthalene | ug/l | G2 | 10 | | | | | | < 10 | | | | | < 10 | | | | | | |
| R28D | n-Butylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | n-Propylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | | | | < 5 | | | | | < 6 | | | | | | |
| R28D | Phenolics | ug/l | G2 | 5 | | | < 5 | < 5 | < 5 | < 5 | | < 5 | < 5 | < 5 | < 5 | | < 5 | | < 5 | < 5 | |
| R28D | p-Isopropyltoluene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | sec-Butylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Styrene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | tert-Butylbenzene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Tetrachloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Tetrahydrofuran | ug/l | G2 | 7 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R28D | Toluene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Trichloroethene | ug/l | G2 | 10 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Trichlorofluoromethane | ug/l | G2 | 5 | | | | | | < 1 | | | | | < 1 | | | | | | |
| R28D | Vinyl acetate | ug/l | G2 | 10 | | | | | | < 5 | | | | | < 5 | | | | | | |
| R28D | Vinyl chloride | ug/l | G2 | 2 | | | | | | < 2 | | | | | < 2 | | | | | | |
| R28D | Xylenes (Total) | ug/l | G2 | 5 | | | | | | < 2 | | | | | < 2 | | | | | | |

Notes:
A highlighted cell indicates an exceedence.
# indicates parameter being addressed by either pending Application Log No. 2010-152 or Log No. 2010-373.

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 2ndQtr05 | 2ndQtr05re | 3rdQtr05 | 3rdQtr05re | 4thQtr05 | 4thQtr05re | 1stQtr06 | 1stQtr06re | 2ndQtr06 | 2ndQtr06re | 3rdQtr06 | 3rdQtr06re | 4thQtr06 | 4thQtr06re | 1stQtr07 | 1stQtr07re |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R22S | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | < 0.09 | | < 0.1 | | < 0.1 | | < 0.1 | | < 0.09 | | < 0.09 | | < 0.09 | | < 0.09 | |
| R22S | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | 3.1 | | 1.7 | | < 1 | | 1.1 | | 2.7 | | 2.8 | | 3.7 | 1.5 | < 1 | |
| R22S | Boron, Dissolved | ug/l | G1 | 147.619 | | | 19 | | 17 | | 11 | | 21 | | 20 | | 22 | | 21 | | 33 | |
| R22S | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Chloride, Dissolved | mg/l | G1 | 200 | | # | 460 | 400 | 390 | 460 | 460 | | 490 | | 530 | | 480 | | 530 | | 540 | 580 |
| R22S | Chromium, dissolved | ug/l | G1 | 19 | | # | | | | | | | | | | | | | | | | |
| R22S | Cyanide, Total | mg/l | G1 | 0.005 | | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | |
| R22S | Lead, Dissolved | ug/l | G1 | 1 | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | | | | | | | | |
| R22S | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | | |
| R22S | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | < 0.02 | | 0.075 | | 0.027 | | 0.047 | | < 0.02 | | 0.16 | | < 0.02 | | 0.045 | |
| R22S | pH (field) | units | G1 | 4.9 - 9.8 | | | 7.48 | | 8.3 | 7.31 | 8 | 6.55 | 7.12 | 6.9 | 6.99 | | 7.3 | 7.02 | 8.88 | | 7.4 | 7.14 |
| R22S | Specific Conductance (field) | umhos | G1 | 2029.99 | | | 1450 | | 1960 | 1910 | 1366 | 1572 | 1055 | 1313 | 1778 | | 1610 | 1650 | 1046 | | 1984 | 1735 |
| R22S | Sulfate, Dissolved | mg/l | G1 | 420 | | | 25 | | 28 | | 29 | | 27 | | 23 | | 28 | | 27 | | 26 | |
| R22S | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | 2105.394 | | 1100 | | 1200 | | 1400 | 1200 | 1300 | | 1300 | | 1500 | 1300 | 1300 | | 1300 | |
| R22S | Zinc, Dissolved | ug/l | G1 | 204.21 | | | < 6 | | < 6 | | < 6 | | < 6 | | < 6 | | 7 | | < 6 | | < 6 | |
| R22S | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,1-Dichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,1-Dichloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,1-Dichloropropene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | < 0.05 | | | | | | | | < 0.05 | | | | | | | |
| R22S | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | < 0.05 | | | | | | | | < 0.05 | | | | | | | |
| R22S | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,2-Dichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,2-Dichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,3-Dichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 1,3-Dichloropropene | ug/l | G2 | 5 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R22S | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 2,2-Dichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 2-Butanone (MEK) | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | 2-Chlorotoluene | ug/l | G2 | 1 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | 4-Chlorotoluene | ug/l | G2 | 1 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | Acetone | ug/l | G2 | 100 | | | < 10 | | | | | | | | < 10 | | | | | | | |
| R22S | Acrylonitrile | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | Benzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Bromobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Bromochloromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Bromodichloromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Bromoform | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Bromomethane | ug/l | G2 | 10 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R22S | Carbon disulfide | ug/l | G2 | 5 | | | 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Carbon tetrachloride | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Chlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Chloroethane | ug/l | G2 | 10 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R22S | Chloroform | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Chloromethane | ug/l | G2 | 10 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R22S | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Dibromochloromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Dibromomethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Dichlorodifluoromethane | ug/l | G2 | 5 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R22S | Ethylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Hexachlorobutadiene | ug/l | G2 | 10 | | | < 10 | | | | | | | | < 10 | | | | | | | |
| R22S | Iodomethane | ug/l | G2 | 1 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Isopropylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Methylene Chloride | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | Naphthalene | ug/l | G2 | 10 | | | < 10 | | | | | | | | < 10 | | | | | | | |
| R22S | n-Butylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | n-Propylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | Phenolics | ug/l | G2 | 5 | | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R22S | p-Isopropyltoluene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | sec-Butylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Styrene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | tert-Butylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Tetrachloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Tetrahydrofuran | ug/l | G2 | 7 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | Toluene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Trichloroethene | ug/l | G2 | 10 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Trichlorofluoromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R22S | Vinyl acetate | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R22S | Vinyl chloride | ug/l | G2 | 2 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R22S | Xylenes (Total) | ug/l | G2 | 5 | | | < 2 | | | | | | | | < 2 | | | | | | | |

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 2ndQtr05 | 2ndQtr05re | 3rdQtr05 | 3rdQtr05re | 4thQtr05 | 4thQtr05re | 1stQtr06 | 1stQtr06re | 2ndQtr06 | 2ndQtr06re | 3rdQtr06 | 3rdQtr06re | 4thQtr06 | 4thQtr06re | 1stQtr07 | 1stQtr07re |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R28D | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | < 0.09 | | < 0.1 | | Q< 0.1 | | < 0.1 | | < 0.09 | | < 0.09 | | < 0.09 | | < 0.09 | |
| R28D | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Boron, Dissolved | ug/l | G1 | 147.619 | | | 19 | | 17 | | < 10 | | 22 | | 19 | | 20 | | 20 | | 18 | |
| R28D | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Chloride, Dissolved | mg/l | G1 | 200 | | | 38 | | 39 | | 39 | | 35 | | 38 | | 37 | | 39 | | 38 | |
| R28D | Chromium, dissolved | ug/l | G1 | 19 | | | | | | | | | | | | | | | | | | |
| R28D | Cyanide, Total | mg/l | G1 | 0.005 | | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | | < 0.005 | |
| R28D | Lead, Dissolved | ug/l | G1 | 1 | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | | | | | | | | |
| R28D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | | | | | | | | |
| R28D | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | 9.8 | | 9.4 | | 10 | | 9.5 | | H 11 | | 9 | | 10 | | 11 | |
| R28D | pH (field) | units | G1 | 4.9 - 9.8 | | | 6.9 | | 7.17 | | 7.2 | | 6.97 | | 7.64 | 7.21 | 6.7 | | 6.98 | | 7.22 | |
| R28D | Specific Conductance (field) | umhos | G1 | 2029.99 | | | 490 | | 792 | | 654 | | 849 | | 784 | 668 | 679 | | 650 | | 869 | |
| R28D | Sulfate, Dissolved | mg/l | G1 | 420 | | | 42 | | 46 | | 47 | | 37 | | 39 | | 36 | | 40 | | 36 | |
| R28D | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | | | 480 | | 530 | | 530 | | 500 | | 440 | | 510 | | 450 | | 490 | |
| R28D | Zinc, Dissolved | ug/l | G1 | 204.21 | | | < 6 | | < 6 | | < 6 | | < 6 | | < 6 | | < 6 | | < 6 | | < 6 | |
| R28D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,1-Dichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,1-Dichloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,1-Dichloropropene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | < 0.05 | | | | | | | | < 0.05 | | | | | | | |
| R28D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | < 0.05 | | | | | | | | < 0.05 | | | | | | | |
| R28D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,2-Dichloroethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,2-Dichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,3-Dichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 1,3-Dichloropropene | ug/l | G2 | 5 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R28D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 2,2-Dichloropropane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 2-Butanone (MEK) | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | 2-Chlorotoluene | ug/l | G2 | 1 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | 4-Chlorotoluene | ug/l | G2 | 1 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | Acetone | ug/l | G2 | 100 | | | < 10 | | | | | | | | < 10 | | | | | | | |
| R28D | Acrylonitrile | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | Benzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Bromobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Bromochloromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Bromodichloromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Bromoform | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Bromomethane | ug/l | G2 | 10 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R28D | Carbon disulfide | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Carbon tetrachloride | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Chlorobenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Chloroethane | ug/l | G2 | 10 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R28D | Chloroform | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Chloromethane | ug/l | G2 | 10 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R28D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Dibromochloromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Dibromomethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Dichlorodifluoromethane | ug/l | G2 | 5 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R28D | Ethylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Hexachlorobutadiene | ug/l | G2 | 10 | | | <W 10 | | | | | | | | < 10 | | | | | | | |
| R28D | Iodomethane | ug/l | G2 | 1 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Isopropylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Methylene Chloride | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | Naphthalene | ug/l | G2 | 10 | | | <W 10 | | | | | | | | < 10 | | | | | | | |
| R28D | n-Butylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | n-Propylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | Phenolics | ug/l | G2 | 5 | | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R28D | p-Isopropyltoluene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | sec-Butylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Styrene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | tert-Butylbenzene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Tetrachloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Tetrahydrofuran | ug/l | G2 | 7 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | Toluene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Trichloroethene | ug/l | G2 | 10 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Trichlorofluoromethane | ug/l | G2 | 5 | | | < 1 | | | | | | | | < 1 | | | | | | | |
| R28D | Vinyl acetate | ug/l | G2 | 10 | | | < 5 | | | | | | | | < 5 | | | | | | | |
| R28D | Vinyl chloride | ug/l | G2 | 2 | | | < 2 | | | | | | | | < 2 | | | | | | | |
| R28D | Xylenes (Total) | ug/l | G2 | 5 | | | < 2 | | | | | | | | < 2 | | | | | | | |

Notes:
A highlighted cell indicates an exceedence.
# indicates parameter being addressed by either pending Application Log No. 2010-152 or Log No. 2010-373.

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 2ndQtr07 | 2ndQtr07re | 3rdQtr07 | 4thQtr07 | 4thQtr07re | 1stQtr08 | 1stQtr08re | 2ndQtr08 | 3rdQtr08 | 4thQtr08 | 1stQtr09 | 2ndQtr09 | 3rdQtr09 | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R22S | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | < 0.9 | | < 0.09 | < 0.09 | | < 0.09 | | < 0.09 | < 0.09 | < 0.09 | < 0.09 | < 0.09 | < 0.09 | < 0.09 | < 0.09 | < 0.09 | < 0.09 |
| R22S | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | 1.8 | | 1.7 | 2.6 | | 1.4 | | 2.1 | 1.4 | 1.8 | 2 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| R22S | Boron, Dissolved | ug/l | G1 | 147.619 | | | < 10 | | 24 | 24 | | 18 | | 20 | 20 | 29 | 29 | 36 | 50 | < 10 | 19 | 11 | 31 |
| R22S | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | < 1 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| R22S | Chloride, Dissolved | mg/l | G1 | 200 | | # | 570 | 560 | 590 | 530 | 540 | 670 | 610 | 600 | 840 | 600 | 700 | 800 | 810 | 890 | 870 | 840 | 870 |
| R22S | Chromium, dissolved | ug/l | G1 | 19 | | # | | | | | | | | | 17 | 19 | 16 | 18 | 24 | 26 | 24 | 20 | 36 |
| R22S | Cyanide, Total | mg/l | G1 | 0.005 | | | < 0.005 | | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| R22S | Lead, Dissolved | ug/l | G1 | 1 | | | < 1 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| R22S | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | 100 | 100 | 100 | 100 | 120 | 120 | 130 | 120 | 120 |
| R22S | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| R22S | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | 0.24 | | H 0.029 | < 0.02 | | 0.041 | | < 0.02 | < 0.02 | 0.037 | < 0.02 | 0.03 | < 0.02 | < 0.02 | 0.037 | < 0.02 | 0.055 |
| R22S | pH (field) | units | G1 | 4.9 - 9.8 | | | 7.11 | | 6.77 | 7.39 | 6.69 | 7.14 | 6.45 | 7.65 | 7.09 | 7.79 | 7.49 | 7.03 | 7.34 | 6.39 | 7.53 | 7.07 | 7.65 |
| R22S | Specific Conductance (field) | umhos | G1 | 2029.99 | | | 1422 | | 992 | 1485 | 1782 | 2565 | 1235 | 564 | 810 | 715 | 1747 | 2710 | 749 | 938 | 1571 | 3200 | 1209 |
| R22S | Sulfate, Dissolved | mg/l | G1 | 420 | | | 22 | | 31 | 28 | | 27 | | 25 | 28 | 27 | 28 | 30 | 29 | 31 | 30 | 26 | 29 |
| R22S | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | 2105.394 | | 1500 | 920 | 1700 | 1400 | 2000 | 1300 | | 1500 | 1600 | 1300 | 1300 | 1600 | 1800 | 1900 | 1800 | 2400 | 2400 |
| R22S | Zinc, Dissolved | ug/l | G1 | 204.21 | | | < 6 | | < 6 | < 6 | | < 6 | | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 |
| R22S | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,1-Dichloroethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,1-Dichloroethene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,1-Dichloropropene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | F< 5 | | | | | | | < 5 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | < 0.05 | | | | | | | < 0.05 | | < 0.05 | | < 0.05 | | < 0.05 | | < 0.05 | |
| R22S | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | < 0.05 | | | | | | | < 0.05 | | < 0.05 | | < 0.05 | | < 0.05 | | < 0.05 | |
| R22S | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,2-Dichloroethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,2-Dichloropropane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,3-Dichloropropane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 1,3-Dichloropropene | ug/l | G2 | 5 | | | F< 2 | | | | | | | < 2 | | | | < 1 | | < 1 | | < 1 | |
| R22S | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 2,2-Dichloropropane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 2-Butanone (MEK) | ug/l | G2 | 10 | | | F< 5 | | | | | | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R22S | 2-Chlorotoluene | ug/l | G2 | 1 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | F< 5 | | | | | | | < 5 | | < 5 | | < 1 | | < 1 | | < 1 | |
| R22S | 4-Chlorotoluene | ug/l | G2 | 1 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | F< 5 | | | | | | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R22S | Acetone | ug/l | G2 | 100 | | | F< 10 | | | | | | | < 10 | | < 10 | | < 5 | | < 5 | | < 5 | |
| R22S | Acrylonitrile | ug/l | G2 | 10 | | | F< 5 | | | | | | | < 5 | | < 50 | | < 5 | | < 5 | | < 5 | |
| R22S | Benzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Bromobenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Bromochloromethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Bromodichloromethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Bromoform | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Bromomethane | ug/l | G2 | 10 | | | F< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R22S | Carbon disulfide | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Carbon tetrachloride | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Chlorobenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Chloroethane | ug/l | G2 | 10 | | | F< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R22S | Chloroform | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Chloromethane | ug/l | G2 | 10 | | | F< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R22S | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Dibromochloromethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Dibromomethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Dichlorodifluoromethane | ug/l | G2 | 5 | | | F< 2 | | | | | | | < 2 | | < 2 | | < 1 | | < 1 | | < 1 | |
| R22S | Ethylbenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Hexachlorobutadiene | ug/l | G2 | 10 | | | < 10 | | | | | | | < 10 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R22S | Iodomethane | ug/l | G2 | 1 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Isopropylbenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Methylene Chloride | ug/l | G2 | 10 | | | F< 5 | | | | | | | < 5 | | < 5 | | < 2.5 | | < 2.5 | | < 2.5 | |
| R22S | Naphthalene | ug/l | G2 | 10 | | | < 10 | | | | | | | < 10 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R22S | n-Butylbenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | n-Propylbenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | < 5 | | | | | | | < 5 | | < 5 | | < 6 | | < 5 | | < 5 | |
| R22S | Phenolics | ug/l | G2 | 5 | | | < 5 | | < 5 | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R22S | p-Isopropyltoluene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | sec-Butylbenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Styrene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | tert-Butylbenzene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Tetrachloroethene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Tetrahydrofuran | ug/l | G2 | 7 | | | F< 5 | | | | | | | < 5 | | < 20 | | < 2.5 | | < 2.5 | | < 2.5 | |
| R22S | Toluene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Trichloroethene | ug/l | G2 | 10 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Trichlorofluoromethane | ug/l | G2 | 5 | | | F< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R22S | Vinyl acetate | ug/l | G2 | 10 | | | F< 5 | | | | | | | < 5 | | < 5 | | < 1 | | < 1 | | < 1 | |
| R22S | Vinyl chloride | ug/l | G2 | 2 | | | F< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R22S | Xylenes (Total) | ug/l | G2 | 5 | | | F< 2 | | | | | | | < 2 | | < 2 | | < 1 | | < 1 | | < 1 | |

**Table 2**
**Winnebago Landfill**
**Southern Unit Analytical**
**R22S, R28D**

| Well ID | Parameter | Units | GW List | AGQS | Intrawell | Addressed | 2ndQtr07 | 2ndQtr07re | 3rdQtr07 | 4thQtr07 | 4thQtr07re | 1stQtr08 | 1stQtr08re | 2ndQtr08 | 3rdQtr08 | 4thQtr08 | 1stQtr09 | 2ndQtr09 | 3rdQtr09 | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R28D | Ammonia as N, dissolved | mg/l | G1 | 1.481 | | | < 0.09 | | < 0.09 | < 0.09 | | 0.21 | | 0.66 | 0.67 | 0.46 | 0.2 | 0.39 | 0.39 | 0.28 | 0.19 | 0.19 | 0.26 |
| R28D | Arsenic, Dissolved | ug/l | G1 | 3.801 | | | < 1 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | 11 | 2.3 | 4.3 | 5.6 |
| R28D | Boron, Dissolved | ug/l | G1 | 147.619 | | | 47 | | 120 | 130 | | 82 | | 37 | 35 | 68 | 54 | 38 | 28 | 20 | 33 | 16 | 36 |
| R28D | Cadmium, Dissolved | ug/l | G1 | 3.264 | | | < 1 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| R28D | Chloride, Dissolved | mg/l | G1 | 200 | | | 60 | | 65 | 50 | | 46 | | 43 | 56 | 55 | 47 | 53 | 48 | 61 | 61 | 62 | 57 |
| R28D | Chromium, dissolved | ug/l | G1 | 19 | | | | | | | | | | | < 4 | < 4 | < 4 | < 4 | < 4 | < 4 | < 4 | < 4 | < 4 |
| R28D | Cyanide, Total | mg/l | G1 | 0.005 | | | < 0.005 | | < 0.005 | < 0.005 | | < 0.005 | | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| R28D | Lead, Dissolved | ug/l | G1 | 1 | | | < 1 | | < 1 | < 1 | | < 1 | | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| R28D | Magnesium, dissolved | mg/l | G1 | 160 | | | | | | | | | | | 62 | 48 | 47 | 56 | 68 | 100 | 75 | 84 | 73 |
| R28D | Mercury, dissolved | ug/l | G1 | 0.2 | | | | | | | | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| R28D | Nitrate as N, dissolved | mg/l | G1 | 17.14 | | | 10 | | 8.7 | 9.7 | | 11 | | 10 | 7.6 | 9.9 | 11 | 11 | 8.7 | 1.1 | 2.3 | 2.6 | 2.4 |
| R28D | pH (field) | units | G1 | 4.9 - 9.8 | | | 7.22 | | 7.8 | 7.2 | 6.67 | 7.51 | | 6.94 | 6.89 | 7.51 | 7.29 | 6.91 | 7.4 | 6.9 | 6.72 | 6.83 | 6.95 |
| R28D | Specific Conductance (field) | umhos | G1 | 2029.99 | | | 851 | | 829 | 765 | 798 | 662 | | 756 | 559 | 581 | 833 | 345 | 571 | 680 | 955 | 1202 | 907 |
| R28D | Sulfate, Dissolved | mg/l | G1 | 420 | | | 39 | | 38 | 40 | | 37 | | 36 | 31 | 40 | 31 | 31 | 38 | 67 | 52 | 61 | 56 |
| R28D | Total Dissolved Solids, filtered | mg/l | G1 | 1310.39 | | | 580 | | 660 | 550 | | 470 | | 470 | 640 | 500 | 440 | 530 | 640 | 1000 | 820 | 870 | 880 |
| R28D | Zinc, Dissolved | ug/l | G1 | 204.21 | | | < 6 | | < 6 | < 6 | | < 6 | | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 | < 6 |
| R28D | 1,1,1,2-Tetrachloroethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,1,1-Trichloroethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,1,2,2-Tetrachloroethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,1,2-Trichloroethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,1-Dichloroethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,1-Dichloroethene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,1-Dichloropropene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,2,3-Trichlorobenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,2,3-Trichloropropane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,2,4-Trichlorobenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,2,4-Trimethylbenzene | ug/l | G2 | 5 | | | X< 5 | | | | | | | < 5 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,2-Dibromo-3-chloropropane | ug/l | G2 | 5 | | | < 0.05 | | | | | | | < 2 | | < 0.05 | | < 0.05 | | < 0.05 | | < 0.05 | |
| R28D | 1,2-Dibromoethane (EDB) | ug/l | G2 | 5 | | | < 0.05 | | | | | | | < 0.5 | | < 0.05 | | < 0.05 | | < 0.05 | | < 0.05 | |
| R28D | 1,2-Dichlorobenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,2-Dichloroethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,2-Dichloropropane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,3,5-Trimethylbenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,3-Dichlorobenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,3-Dichloropropane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 1,3-Dichloropropene | ug/l | G2 | 5 | | | X< 2 | | | | | | | < 2 | | | | < 1 | | < 1 | | < 1 | |
| R28D | 1,4-Dichlorobenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 2,2-Dichloropropane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 2-Butanone (MEK) | ug/l | G2 | 10 | | | X< 5 | | | | | | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R28D | 2-Chlorotoluene | ug/l | G2 | 1 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 2-Hexanone (MBK) | ug/l | G2 | 50 | | | X< 5 | | | | | | | < 5 | | < 5 | | < 1 | | < 1 | | < 1 | |
| R28D | 4-Chlorotoluene | ug/l | G2 | 1 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | 4-Methyl-2-pentanone (MIBK) | ug/l | G2 | 10 | | | X< 5 | | | | | | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R28D | Acetone | ug/l | G2 | 100 | | | X< 10 | | | | | | | < 10 | | < 10 | | < 5 | | < 5 | | < 5 | |
| R28D | Acrylonitrile | ug/l | G2 | 10 | | | X< 5 | | | | | | | < 5 | | < 50 | | < 5 | | < 5 | | < 5 | |
| R28D | Benzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Bromobenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Bromochloromethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Bromodichloromethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Bromoform | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Bromomethane | ug/l | G2 | 10 | | | X< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R28D | Carbon disulfide | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Carbon tetrachloride | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Chlorobenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Chloroethane | ug/l | G2 | 10 | | | X< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R28D | Chloroform | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Chloromethane | ug/l | G2 | 10 | | | X< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R28D | cis-1,2-Dichloroethene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | cis-1,3-Dichloropropene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Dibromochloromethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Dibromomethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Dichlorodifluoromethane | ug/l | G2 | 5 | | | X< 2 | | | | | | | < 2 | | < 2 | | < 1 | | < 1 | | < 1 | |
| R28D | Ethylbenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Hexachlorobutadiene | ug/l | G2 | 10 | | | < 10 | | | | | | | < 10 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R28D | Iodomethane | ug/l | G2 | 1 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Isopropylbenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Methylene Chloride | ug/l | G2 | 10 | | | X< 5 | | | | | | | < 5 | | < 5 | | < 2.5 | | < 2.5 | | < 2.5 | |
| R28D | Naphthalene | ug/l | G2 | 10 | | | < 10 | | | | | | | < 10 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R28D | n-Butylbenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | n-Propylbenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Oil (Hexane Soluble) | mg/l | G2 | 5 | | | < 5 | | | | | | | < 6 | | < 5 | | < 6 | | < 6 | | < 6 | |
| R28D | Phenolics | ug/l | G2 | 5 | | | < 5 | | < 5 | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | | < 5 | |
| R28D | p-Isopropyltoluene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | sec-Butylbenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Styrene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | tert-Butylbenzene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Tetrachloroethene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Tetrahydrofuran | ug/l | G2 | 7 | | | X 19 | | | | | | | < 5 | | < 20 | | < 2.5 | | < 2.5 | | < 2.5 | |
| R28D | Toluene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | 1.4 | < 1 | < 1 | |
| R28D | trans-1,2-Dichloroethene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | trans-1,3-Dichloropropene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | trans-1,4-Dichloro-2-butene | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Trichloroethene | ug/l | G2 | 10 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Trichlorofluoromethane | ug/l | G2 | 5 | | | X< 1 | | | | | | | < 1 | | < 1 | | < 1 | | < 1 | | < 1 | |
| R28D | Vinyl acetate | ug/l | G2 | 10 | | | X< 5 | | | | | | | < 5 | | < 5 | | < 1 | | < 1 | | < 1 | |
| R28D | Vinyl chloride | ug/l | G2 | 2 | | | X< 2 | | | | | | | < 2 | | < 2 | | < 2 | | < 2 | | < 2 | |
| R28D | Xylenes (Total) | ug/l | G2 | 5 | | | X< 2 | | | | | | | < 2 | | < 2 | | < 1 | | < 1 | | < 1 | |

Notes:
A highlighted cell indicates an exceedence.
# indicates parameter being addressed by either pending Application Log No. 2010-152 or Log No. 2010-373.

# FIGURES

File: J:\1990\90-114\DWG\North Expansion Unit\FIG1_REV7-22-10.dwg Tab: Layout1 User: mnguyen Plotted: Oct 07, 2010 - 1:06 PM

N

200 0 200 400 800

SCALE: IN FEET

**LEGEND**

- SGX — STREAM GAUGE LOCATION
- NORTH UNIT GROUND WATER MONITOR WELL OR GMZ WELL
- SOUTH UNIT GROUND WATER MONITOR WELL
- CURRENTLY PERMITTED FILL BOUNDARY
- BENCHMARK
- REPLACEMENT MONITORING WELL
- NORTH EXPANSION UNIT MONITORING WELL

E 798,500 E 799,000 E 799,500 E 800,000 E 800,500

N 2,004,000 N 2,003,500 N 2,003,000 N 2,002,500 N 2,002,000 N 2,001,500 N 2,001,000 N 2,000,500 N 2,000,000 N 1,999,500

NORTH EXPANSION UNIT
(CONSTRUCTION ONGOING)

NORTHERN UNIT

SOUTHERN UNIT

SOUTHERN UNIT EXPANSION

WINNEBAGO LANDFILL PROPERTY BOUNDARY

KILBUCK CREEK

G175 G174 G173 G172 G171 G170 G169 G168 G167 G50S G52S (T4U-A) T4U G52M (T4L-A) T4L G176 G177 G178 G179 G180 G185 G181 G182 G183 G184 G18S G18D G161 G17S G37D G37S T3L-A T3U T3U-A T3L G34D G34S T2L-A T2U T2U-A T2L G40S G51S R39S G41M G41D G41S T1U-A T1U T1L T1L-A G16M G16D G35D G35S SG1 R03S G03M G38S G33S G33D G36S G130 G45D R42S R28D R27D G26S G26D R25D R24D G23D G29D G29S R11S G11D R22S G22D G09D G09M R05S G13S G13D G20D SG3

| | | | |
|---|---|---|---|
| FIG. 1 | SHEET NUMBER: | PROJECT ID: 90-114 | DATE: JULY 2010 |

SITE MAP

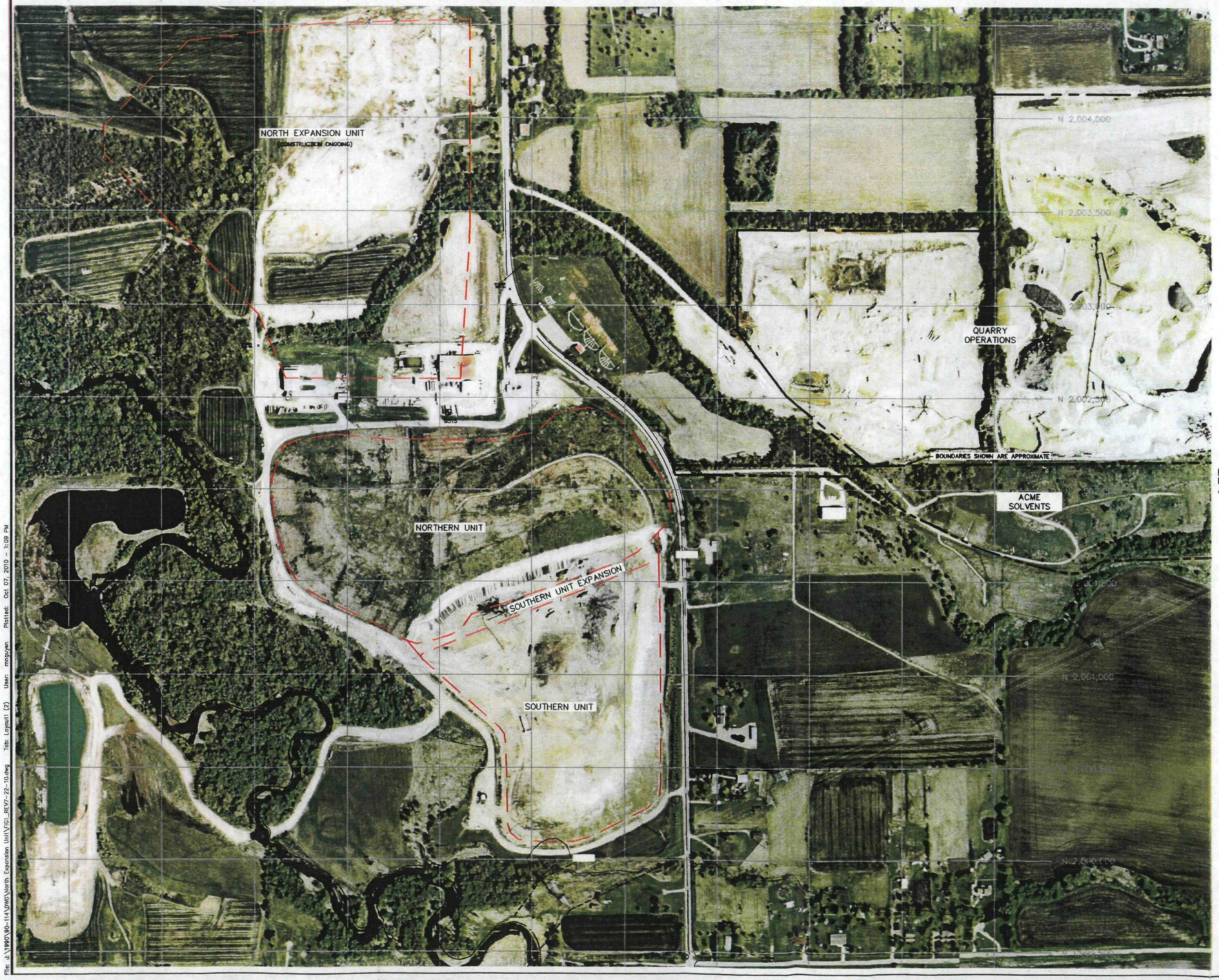
PLANS PREPARED FOR
WINNEBAGO LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS


ANDREWS ENGINEERING, INC.
3300 Ginger Creek Drive, Springfield, IL 62711-7233
Tel (217) 787-2334 Fax (217) 787-9495
Pontiac, IL • Naperville, IL • Indianapolis, IN • Warrenton, MO


APPROVED BY: TNS | DESIGNED BY: TNS | DRAWN BY: MPN

REVISIONS

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| 1 | 5/11/10 | ADDED COORDINATE SYSTEM GRID | KEV |




| LEGEND |
|---|
| CURRENTLY PERMITTED FILL BOUNDARY |

NOTE:
BACKGROUND IMAGE EXTRACTED FROM GOOGLE EARTH, APRIL 23, 2006.

N

250 0 250 500 1000

SCALE: IN FEET

| REVISIONS | | | |
|---|---|---|---|
| NO. | DATE | DESCRIPTION | BY |
| 1 | 5/11/10 | ADDED COORDINATE SYSTEM GRID | KEV |

ANDREWS ENGINEERING, INC.
3300 Ginger Creek Drive, Springfield, IL 62711-7233
Tel (217) 787-2334 Fax (217) 787-8495
Pontiac, IL • Naperville, IL • Indianapolis, IN • Warrenton, MO

APPROVED BY: TNS | DESIGNED BY: TNS | DRAWN BY: MPN

SITE LOCATION MAP

PLANS PREPARED FOR
WINNEBAGO LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

DATE: AUGUST 2010

PROJECT ID: 90-114

SHEET NUMBER:

FIG. 2



File: J:\1990\90-114\DWG\North Expansion Unit\FIG1_REV7-22-10.dwg Tab: Layout1 (2) User: mmguyen Plotted: Oct 07, 2010 - 1:09 PM

# APPENDIX A

APPLICATION FORMS

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

## Certification of Authenticity of Official Forms

This form must accompany any application submitted to the Illinois EPA Bureau of Land, Division of Land Pollution Control, Permit Section on forms other than the official copy printed and provided by the Illinois EPA. The only allowed changes to the form are in spacing, fonts, and the addition of the information provided. Any additions must be underlined. The forms would not be considered identical if there is any change to, addition or deletion of words on the form or to the language of the form.

The same individuals that sign the application form it accompanies must sign the following certification.

*I hereby certify under penalty of law that I have personally examined, and am familiar with the application form or forms and all included supplemental information submitted to the Illinois EPA herewith, and that the official Illinois Environmental Protection Agency application form or forms used herein is or are identical in all respects to the official form or forms provided by the Illinois EPA Bureau of Land Permit Section, and has not or have not been altered, amended, or otherwise modified in any way. I further certify under penalty of law that any attached or included electronic data version of the application form or forms complies with the official Illinois EPA's Electronic version thereof, and is or are identical in all respects to the official electronically downloadable form or forms provided by the Illinois EPA Bureau of Land Permit Section, and has not or have not been altered, amended or otherwise modified in any way.*

By: _____ 10-12-2010
Owner Signature (date)

Engineering Manager
Title

By: _____ 10-12-2010
Operator Signature (date)

Engineering Manager
Title

_____ 10/13/10
Engineer Signature (date)
(if necessary)

*Subscribed and Sworn to Before Me,*
*a Notary Public in and for the*
*above-mentioned County and State.*

"OFFICIAL SEAL"
Nicole K. DeBoer
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 1/10/2014

_____
Notary Public

My Commission Expires: 1/10/2014 [Notary Seal]

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Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

# GENERAL APPLICATION FOR PERMIT (LPC-PA1)

This form must be used for any application for permit, except for landscape waste composting or hazardous waste management facilities regulated in accordance with RCRA, Subtitle C from the Bureau of Land. One original and two (2) photocopies, or three (3) if applicable, of all permit application forms must be submitted. Attach the original and appropriate number of copies of any necessary plans, specifications, reports, etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Incomplete applications will be rejected. Please refer to the instructions for further guidance.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print legibly.

## I. SITE IDENTIFICATION

Name: Winnebago Landfill  Site # (Illinois EPA): 2018080001

Physical Site Location (street, road, etc.): 8403 Lindenwood Road

City, Zip Code: Rockford, 61109  County: Winnebago

Existing DE/OP Permit Nos. (if applicable): 1991-138-LF

## II. OWNER/OPERATOR IDENTIFICATION

| | OWNER | OPERATOR |
|---|---|---|
| Name: | Winnebago Landfill Company, LLC | Winnebago Reclamation Service, Inc. |
| Address: | 5450 Wansford Way | 5450 Wansford Way |
| | Suite 201B | Suite 201B |
| | Rockford, IL 61109 | Rockford, IL 61109 |
| Contact Name: | Tom Hilbert | Tom Hilbert |
| Phone #: | (815) 963-7516 | (815) 963-7516 |

## III. PERMIT APPLICATION IDENTIFICATION

**TYPE SUBMISSION/REVIEW PERIOD:**
- ☐ New Landfill/180 days (35 IAC Part 813)
- ☐ Landfill Expansion/180 days (35 IAC Part 813)
- ☐ Sign. Mod to Operate/90 days (35 IAC Part 813)
- ☒ Other Sign. Mod/90 days (35 IAC Part 813)
- ☐ Renewal of Landfill 90 days (35 IAC Part 813)
- ☐ Developmental/90 days (35 IAC Part 807)
- ☐ Operating/45 days (35 IAC Part 807)
- ☐ Supplemental/90 days (35 IAC Part 807)
- ☐ Permit Transfer/90 days (35 IAC Part 807)
- ☐ Renewal of Experimental Permit (35 IAC Part 807)

**TYPE FACILITY:**
- ☒ Landfill
- ☐ Land Treatment
- ☐ Transfer Station
- ☐ Treatment
- ☐ Storage
- ☐ Incinerator
- ☐ Composting
- ☐ Recycling/Reclamation
- ☐ Other (Specify)

**TYPE WASTE:**
- ☒ General Municipal Refuse
- ☐ Hazardous
- ☒ Special (Non-hazardous)
- ☐ Chemical Only (exc. putrescible)
- ☐ Inert Only (exc. chemical and putrescible)
- ☐ Used Oil
- ☐ Potentially Infectious Medical Waste
- ☐ Landscape Waste
- ☐ Other (Specify)

**DESCRIPTION OF THIS PERMIT REQUEST:** (Include a brief narrative description here.)

Alternate source demonstration in accordance with Condition VIII.15 (Modification No. 42).

## IV. COMPLETENESS REQUIREMENTS

The following items must be checked Yes, No or N/A. Each item will be reviewed by the log clerk. Blank items will result in rejection of the application. Please refer to the instructions for further guidance.

| | | | | |
|---|---|---|---|---|
| 1. | Have all required public notice letters been mailed in accordance with the LPC-PA16 instructions? (If so, provide a list of those recipients of the required public notice letters for Illinois EPA retention.) Such retention shall not imply any Illinois EPA review and/or confirmation of the list.) | ☒ Yes | ☐ No | ☐ N/A |
| 2. a. | Is the Siting Certification Form (LPC-PA8) completed and enclosed? | ☐ Yes | ☐ No | ☒ N/A |
| b. | Is siting approval currently under litigation? | ☐ Yes | ☒ No | ☐ N/A |
| 3. a. | Is a closure, and if necessary a post closure, plan covering these activities being submitted, or | ☐ Yes | ☒ No | ☐ N/A |
| b. | has one already been approved? (Provide permit number 1991-138-LF .) | ☒ Yes | ☐ No | ☐ N/A |
| 4. a. | For waste disposal sites only: Has any employee, owner, operator, officer or director of the owner or operator had a prior conduct certification denied, canceled or revoked? | ☐ Yes | ☒ No | ☐ N/A |
| b. | Have you included a demonstration of how you comply or intend to comply with 35 Ill. Adm. Code Part 745? | ☐ Yes | ☐ No | ☒ N/A |
| 5. a. | Is land ownership held in beneficial trust? | ☐ Yes | ☒ No | ☐ N/A |
| b. | If yes, is a beneficial trust certification form (LPC-PA9) completed and enclosed? | ☐ Yes | ☐ No | ☒ N/A |
| 6. a. | Does the application contain information or proposals regarding the hydrogeology; groundwater monitoring, modeling or classification; a groundwater impact assessment; or vadose zone monitoring for which you are requesting approval? | ☒ Yes | ☐ No | ☐ N/A |
| b. | If yes, have you submitted a third (3rd) copy of the application (4 total) and supporting documents? | ☒ Yes | | |

## V. SIGNATURES (Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable.)

All applications shall be signed by the person designated below as a duly authorized representative of the owner and/or operator.
Corporation - By a principal executive officer of at least the level of vice-president.
Partnership or Sole Proprietorship - By a general partner or the proprietor, respectively.
Government - By either a principal executive officer or a ranking elected official.

A person is a duly authorized representative of the owner and operator only if:
1. They meet the criteria above or the authorization has been granted in writing by a person described above; and
2. is submitted with this application (a copy of a previously submitted authorization can be used).

I hereby affirm that all information contained in this Application is true and accurate to the best of my knowledge and belief.

I do herein swear that I am a duly authorized representative of owner/operator and I am authorized to sign this permit application form.

Owner Signature: _____ Title: Vice President Date: 10-12-2010
Owner FEIN or S.S. Number: 36-2917437

Operator Signature: _____ Title: Vice President Date: 10-12-2010
Operator FEIN or S.S. Number: 36-2917437

Notary: Subscribe and sworn before me this 12th day of October 2010.
Notary Signature: _____ Notary Seal:
My commission expires on: 1/10/2014

"OFFICIAL SEAL"
Nicole K. DeBoer
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 1/10/2014

Engineer Signature: _____ Title: Project Engineer Date: 10/13/10
Engineer Address: Andrews Engineering, Inc.
3300 Ginger Creek Drive
Springfield, Illinois 62711-9405
Engineer Seal:

DOUGLAS W. MOORE
062-054530
REGISTERED PROFESSIONAL ENGINEER
OF
ILLINOIS

Engineer Phone No. (217) 787-2334

Exp. 11/30/11

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7.1 of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

enator Dave Syverson
**enate District 34**
200 South Wyman St, Ste 302
Rockford, IL 61101

# NOTICE OF APPLICATION FOR PERMIT TO MANAGE WASTE (LPC-PA16)

Date: OCT 14 2010

To Elected Officials and Concerned Citizens:

The purpose of this notice is to inform you that a permit application has been submitted to the IEPA, Bureau of Land, for a solid waste project described below. You are not obligated to respond to this notice, however, if you have any comments, please submit them in writing to the address below, or call the Permit Section at 217/524-3300, within twenty-one (21) days.

Illinois Environmental Protection Agency
Bureau of Land, Permit Section (#33)
1021 North Grand Avenue East, Post Office Box 19276
Springfield, Illinois 62794-9276

The permit application, which is identified below, is for a project described at the bottom of this page.

## SITE IDENTIFICATION

Site Name: Winnebago Reclamation Service, Inc.
Site # (IEPA): 2018080001
Address: 8403 Lindenwood Road
City: Rockford, Illinois 61109
County: Winnebago

| TYPE PERMIT SUBMISSIONS: | | TYPE FACILITY: | | TYPE WASTE: | |
|---|---|---|---|---|---|
| New Landfill | ☐ | Landfill | ☒ | General Municipal Refuse | ☒ |
| Landfill Expansion | ☐ | Land Treatment | ☐ | Hazardous | ☐ |
| First Significant Modification | ☐ | Transfer Station | ☐ | Special (Non-Hazardous) | ☒ |
| Significant Modification to Operate | ☐ | Treatment Facility | ☐ | Chemical Only (exec. putrescible) | ☐ |
| Other Significant Modification | ☒ | Storage | ☐ | Inert Only (exec. chem. & putrescible) | ☐ |
| Renewal of Landfill | ☐ | Incinerator | ☐ | Used Oil | ☐ |
| Development | ☐ | Composting | ☐ | Solvents | ☐ |
| Operating | ☐ | Recycling/Reclamation | ☐ | Landscape/Yard Waste | ☐ |
| Supplemental | ☐ | Other | ☐ | Other (Specify _____) | ☐ |
| Transfer | ☐ | | | | |
| Name Change | ☐ | | | | |
| Generic | ☐ | | | | |

**DESCRIPTION OF PROJECT:**
Alternate source demonstration in accordance with Condition VIII.15 (Modification No. 42).

Please retain a copy for your own use.

jab\002711i.doc
IL 532 0334
LPC 040 Rev. Feb. 03

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

Representative Charles E. Jefferies
**Representative District 67**
200 South Wyman, Ste 304
Rockford, IL 61101

# NOTICE OF APPLICATION FOR PERMIT TO MANAGE WASTE (LPC-PA16)

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Springfield, Illinois 62794-9276

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|---|---|---|---|---|---|
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| Landfill Expansion | ☐ | Land Treatment | ☐ | Hazardous | ☐ |
| First Significant Modification | ☐ | Transfer Station | ☐ | Special (Non-Hazardous) | ☒ |
| Significant Modification to Operate | ☐ | Treatment Facility | ☐ | Chemical Only (exec. putrescible) | ☐ |
| Other Significant Modification | ☒ | Storage | ☐ | Inert Only (exec. chem. & putrescible) | ☐ |
| Renewal of Landfill | ☐ | Incinerator | ☐ | Used Oil | ☐ |
| Development | ☐ | Composting | ☐ | Solvents | ☐ |
| Operating | ☐ | Recycling/Reclamation | ☐ | Landscape/Yard Waste | ☐ |
| Supplemental | ☐ | Other | ☐ | Other (Specify _____) | ☐ |
| Transfer | ☐ | | | | |
| Name Change | ☐ | | | | |
| Generic | ☐ | | | | |

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Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

# NOTICE OF APPLICATION FOR PERMIT TO MANAGE WASTE (LPC-PA16)

Philip A. Nicolosi
**State's Attorney**
400 West State Street
Rockford, IL 61101

Date: OCT 14 2010

To Elected Officials and Concerned Citizens:

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Bureau of Land, Permit Section (#33)
1021 North Grand Avenue East, Post Office Box 19276
Springfield, Illinois 62794-9276

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| Transfer | ☐ | | | | |
| Name Change | ☐ | | | | |
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Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

# NOTICE OF APPLICATION FOR PERMIT TO MANAGE WASTE (LPC-PA16)

Date: OCT 14 2010

Scott Christiansen
County Chairman
404 Elm Street, Room 504
Rockford, IL 61101

To Elected Officials and Concerned Citizens:

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| Other Significant Modification | ☒ | Storage | ☐ | Inert Only (exec. chem. & putrescible) | ☐ |
| Renewal of Landfill | ☐ | Incinerator | ☐ | Used Oil | ☐ |
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Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

New Milford Village Clerk
6771 11th Street
Rockford, IL 61109

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Springfield, Illinois 62794-9276

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|---|---|---|---|---|---|
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| Significant Modification to Operate | ☐ | Treatment Facility | ☐ | Chemical Only (exec. putrescible) | ☐ |
| Other Significant Modification | ☒ | Storage | ☐ | Inert Only (exec. chem. & putrescible) | ☐ |
| Renewal of Landfill | ☐ | Incinerator | ☐ | Used Oil | ☐ |
| Development | ☐ | Composting | ☐ | Solvents | ☐ |
| Operating | ☐ | Recycling/Reclamation | ☐ | Landscape/Yard Waste | ☐ |
| Supplemental | ☐ | Other | ☐ | Other (Specify _____) | ☐ |
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Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

Cherry Valley Township Clerk
4875 Blackhawk Road
Rockford, IL 61109

# NOTICE OF APPLICATION FOR PERMIT TO MANAGE WASTE (LPC-PA16)

Date: OCT 14 2010

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| Significant Modification to Operate | ☐ | Treatment Facility | ☐ | Chemical Only (exec. putrescible) | ☐ |
| Other Significant Modification | ☒ | Storage | ☐ | Inert Only (exec. chem. & putrescible) | ☐ |
| Renewal of Landfill | ☐ | Incinerator | ☐ | Used Oil | ☐ |
| Development | ☐ | Composting | ☐ | Solvents | ☐ |
| Operating | ☐ | Recycling/Reclamation | ☐ | Landscape/Yard Waste | ☐ |
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| Name Change | ☐ | | | | |
| Generic | ☐ | | | | |

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Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

**Village of Davis Junction**
106 North Elm St
PO Box 207
Davis Junction, IL 61020

# NOTICE OF APPLICATION FOR PERMIT TO MANAGE WASTE (LPC-PA16)

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| TYPE PERMIT SUBMISSIONS: | | TYPE FACILITY: | | TYPE WASTE: | |
|---|---|---|---|---|---|
| New Landfill | ☐ | Landfill | ☒ | General Municipal Refuse | ☒ |
| Landfill Expansion | ☐ | Land Treatment | ☐ | Hazardous | ☐ |
| First Significant Modification | ☐ | Transfer Station | ☐ | Special (Non-Hazardous) | ☒ |
| Significant Modification to Operate | ☐ | Treatment Facility | ☐ | Chemical Only (exec. putrescible) | ☐ |
| Other Significant Modification | ☒ | Storage | ☐ | Inert Only (exec. chem. & putrescible) | ☐ |
| Renewal of Landfill | ☐ | Incinerator | ☐ | Used Oil | ☐ |
| Development | ☐ | Composting | ☐ | Solvents | ☐ |
| Operating | ☐ | Recycling/Reclamation | ☐ | Landscape/Yard Waste | ☐ |
| Supplemental | ☐ | Other | ☐ | Other (Specify _____) | ☐ |
| Transfer | ☐ | | | | |
| Name Change | ☐ | | | | |
| Generic | ☐ | | | | |

## DESCRIPTION OF PROJECT:

Alternate source demonstration in accordance with Condition VIII.15 (Modification No. 42).

Please retain a copy for your own use.

jab\002711i.doc
IL 532 0334
LPC 040 Rev. Feb. 03

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

# APPENDIX B

Potentiometric Surface Maps

N

200 0 200 400 800

SCALE: IN FEET

NOTES:
1. CONTOUR INTERVAL = 5 FEET
2. SAMPLE DATE = 10/13/2009-10/19/2009.
3. (*) NOT USED IN THE COMPILATION OF THE POTENTIOMETRIC SURFACE.
4. THE NORTHERN AND SOUTHERN UNITS OF WINNEBAGO LANDFILL ARE OPERATED AND MONITORED IN ACCORDANCE WITH ILLINOIS EPA PERMIT NO. 1991-138-LF. THE NORTH EXPANSION UNIT OF WINNEBAGO LANDFILL IS OPERATED AND MONITORED IN ACCORDANCE WITH ILLINOIS EPA PERMIT NO. 2006-221-LF. THE DEPOSITS MONITORED BY ALL THREE WASTE UNITS ARE HYDRAULICALLY CONNECTED; THEREFORE, A SINGLE MAP DEPICTING THE GROUNDWATER FLOW REGIME HAS BEEN COMPILED.
5. IN THE CASE OF NESTED WELLS THE GROUNDWATER ELEVATIONS FROM SHALLOW WELLS WERE USED IN THE COMPILATION OF POTENTIOMETRIC CONTOURS.
6. POTENTIOMETRIC CONTOURS AS SHOWN ASSUME CONTINUOUS GEOLOGICAL CONDITIONS AND DO NOT ACCOUNT FOR LINER AND SIDEWALLS EMPLACED FOR DEVELOPMENT OF THE NORTH EXPANSION UNIT.

LEGEND

- SGX — STREAM GAUGE LOCATION
- NORTHERN UNIT GROUND WATER MONITOR WELL OR GMZ WELL
- SOUTHERN UNIT GROUND WATER MONITOR WELL
- CURRENTLY PERMITTED FILL BOUNDARY
- BENCHMARK
- REPLACEMENT MONITORING WELL
- NORTH EXPANSION UNIT MONITORING WELL

E 799,500 E 800,000 E 800,500 N 2,003,000 N 2,002,500 N 2,002,000 N 2,001,500 N 2,001,000 N 2,000,500 N 2,000,000 N 1,999,500

NORTH EXPANSION UNIT
(CONSTRUCTION ONGOING)

NORTHERN UNIT

SOUTHERN UNIT

SOUTHERN UNIT EXPANSION

WINNEBAGO LANDFILL PROPERTY BOUNDARY

LINDENWOOD ROAD

COMMONWEALTH EDISON R.O.W.

ENERGY RECOVERY PLANT AND OFFICE BUILDING

FIRE PROTECTION POND

GAS PROCESSING BUILDING

KILBUCK CREEK

SG1 SG3

694 699 704 709 714 719

i = 0.00994

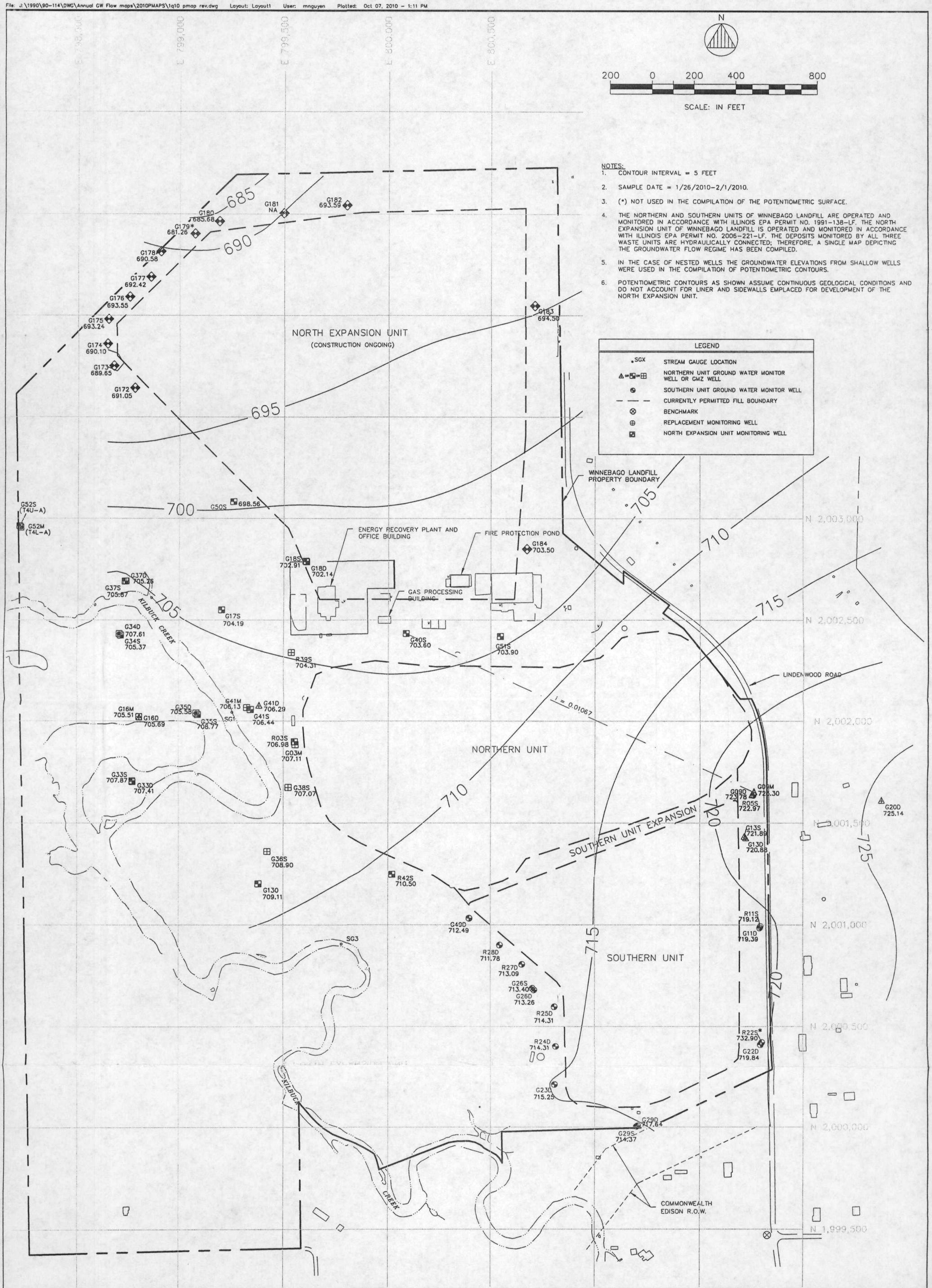
G52S (T4U-A) G52M (T4L-A) G50S NA G180 692.53 G181 NA G182 693.02 G179* 684.41 G178 693.01 G177 693.22 G176 693.87 G175 692.96 G174 690.47 G173 689.53 G172 693.22 G183 692.40 G184 699.65 G18S 702.26 G18D 701.51 G37D 704.24 G37S 704.87 G34D 705.37 G34S 704.62 G17S 703.55 G40S 703.23 G51S 703.19 R39S 703.47 G16M 704.74 G16D 704.79 G35D 706.01 G35S 705.07 G41M 705.27 G41D 705.17 G41S 704.93 R03S 705.63 G03M 705.33 G33S 706.09 G33D 706.10 G38S 706.00 G36S 707.55 G130 707.71 R42S 709.25 G49D 710.44 R28D 709.80 R27D 710.98 G26S 711.40 G26D 711.26 R25D 712.16 R24D 712.63 G23D 713.42 G29D 715.74 G29S 713.60 G09D 721.98 G09M 721.58 R05S 717.73 G20D 722.23 G13S 719.89 G13D 719.58 R11S 717.30 G11D 717.72 R22S* 728.93 G22D 717.92

| | | | |
|---|---|---|---|
| 4Q09 | DATE: JUNE 2010 | POTENTIOMETRIC SURFACE MAP<br>4TH QUARTER 2009 | ANDREWS ENGINEERING, INC.<br>3300 Ginger Creek Drive, Springfield, IL 62711-7233<br>Tel (217) 787-2334 Fax (217) 787-9495<br>Pontiac, IL • Naperville, IL • Indianapolis, IN • Warrenton, MO |
| | PROJECT ID: 90-114 | PLANS PREPARED FOR<br>WINNEBAGO LANDFILL<br>ROCKFORD, WINNEBAGO COUNTY, ILLINOIS | APPROVED BY: JLR DESIGNED BY: JLR DRAWN BY: MPN |
| | SHEET NUMBER: | | |

REVISIONS

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

File: J:\1990\90-114\DWG\Annual GW Flow maps\2010PMAPS\1q10 pmap rev.dwg Layout: Layout1 User: mnguyen Plotted: Oct 07, 2010 - 1:11 PM




NOTES:
1. CONTOUR INTERVAL = 5 FEET
2. SAMPLE DATE = 1/26/2010-2/1/2010.
3. (*) NOT USED IN THE COMPILATION OF THE POTENTIOMETRIC SURFACE.
4. THE NORTHERN AND SOUTHERN UNITS OF WINNEBAGO LANDFILL ARE OPERATED AND MONITORED IN ACCORDANCE WITH ILLINOIS EPA PERMIT NO. 1991-138-LF. THE NORTH EXPANSION UNIT OF WINNEBAGO LANDFILL IS OPERATED AND MONITORED IN ACCORDANCE WITH ILLINOIS EPA PERMIT NO. 2006-221-LF. THE DEPOSITS MONITORED BY ALL THREE WASTE UNITS ARE HYDRAULICALLY CONNECTED; THEREFORE, A SINGLE MAP DEPICTING THE GROUNDWATER FLOW REGIME HAS BEEN COMPILED.
5. IN THE CASE OF NESTED WELLS THE GROUNDWATER ELEVATIONS FROM SHALLOW WELLS WERE USED IN THE COMPILATION OF POTENTIOMETRIC CONTOURS.
6. POTENTIOMETRIC CONTOURS AS SHOWN ASSUME CONTINUOUS GEOLOGICAL CONDITIONS AND DO NOT ACCOUNT FOR LINER AND SIDEWALLS EMPLACED FOR DEVELOPMENT OF THE NORTH EXPANSION UNIT.

| LEGEND | |
|---|---|
| •SGX | STREAM GAUGE LOCATION |
| △ OR ▣ OR ⊞ | NORTHERN UNIT GROUND WATER MONITOR WELL OR GMZ WELL |
| ◍ | SOUTHERN UNIT GROUND WATER MONITOR WELL |
| — — — | CURRENTLY PERMITTED FILL BOUNDARY |
| ⊗ | BENCHMARK |
| ⊕ | REPLACEMENT MONITORING WELL |
| ▣ | NORTH EXPANSION UNIT MONITORING WELL |

1Q10

POTENTIOMETRIC SURFACE MAP
1ST QUARTER 2010

PLANS PREPARED FOR
WINNEBAGO LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

DATE: JUNE 2010
PROJECT ID: 90-114
SHEET NUMBER:

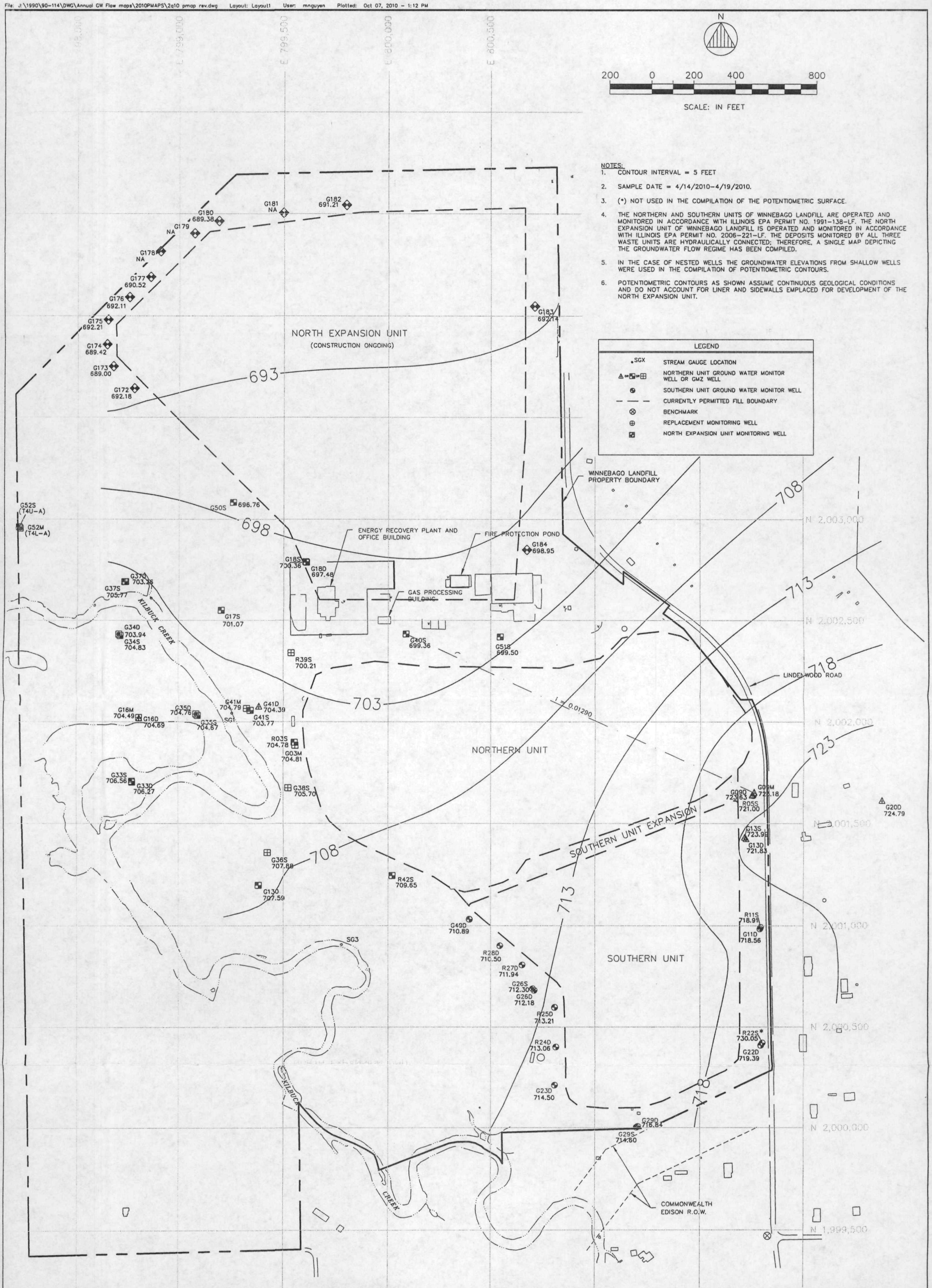
ANDREWS ENGINEERING, INC.
3300 Ginger Creek Drive, Springfield, IL 62711-7233
Tel (217) 787-2334 Fax (217) 787-9495
Pontiac, IL • Naperville, IL • Indianapolis, IN • Warrenton, MO

APPROVED BY: JLR | DESIGNED BY: JLR | DRAWN BY: MPN

REVISIONS

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

File: J:\1990\90-114\DWG\Annual GW Flow maps\2010PMAPS\2q10 pmap rev.dwg Layout: Layout1 User: mnguyen Plotted: Oct 07, 2010 - 1:12 PM




2010

DATE: JUNE 2010
PROJECT ID: 90-114
SHEET NUMBER:

POTENTIOMETRIC SURFACE MAP
2ND QUARTER 2010

PLANS PREPARED FOR
WINNEBAGO LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

ANDREWS ENGINEERING, INC.
3300 Ginger Creek Drive, Springfield, IL 62711-7233
Tel (217) 787-2334 Fax (217) 787-9495
Pontiac, IL • Naperville, IL • Indianapolis, IN • Warrenton, MO

APPROVED BY: JLR | DESIGNED BY: JLR | DRAWN BY: MPN

REVISIONS

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

File: J:\1990\90-114\DWG\Annual GW Flow maps\2010PMAPS\3q10 pmap.dwg Layout: Layout1 User: mnguyen Plotted: Oct 07, 2010 - 1:12 PM

N

200 0 200 400 800

SCALE: IN FEET

NOTES:
1. CONTOUR INTERVAL = 5 FEET
2. SAMPLE DATE = 7/15/2010.
3. (*) NOT USED IN THE COMPILATION OF THE POTENTIOMETRIC SURFACE.
4. THE NORTHERN AND SOUTHERN UNITS OF WINNEBAGO LANDFILL ARE OPERATED AND MONITORED IN ACCORDANCE WITH ILLINOIS EPA PERMIT NO. 1991-138-LF. THE NORTH EXPANSION UNIT OF WINNEBAGO LANDFILL IS OPERATED AND MONITORED IN ACCORDANCE WITH ILLINOIS EPA PERMIT NO. 2006-221-LF. THE DEPOSITS MONITORED BY ALL THREE WASTE UNITS ARE HYDRAULICALLY CONNECTED; THEREFORE, A SINGLE MAP DEPICTING THE GROUNDWATER FLOW REGIME HAS BEEN COMPILED.
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6. POTENTIOMETRIC CONTOURS AS SHOWN ASSUME CONTINUOUS GEOLOGICAL CONDITIONS AND DO NOT ACCOUNT FOR LINER AND SIDEWALLS EMPLACED FOR DEVELOPMENT OF THE NORTH EXPANSION UNIT.

LEGEND

- SGX — STREAM GAUGE LOCATION
- NORTHERN UNIT GROUND WATER MONITOR WELL OR GMZ WELL
- SOUTHERN UNIT GROUND WATER MONITOR WELL
- CURRENTLY PERMITTED FILL BOUNDARY
- BENCHMARK
- REPLACEMENT MONITORING WELL
- NORTH EXPANSION UNIT MONITORING WELL

NORTH EXPANSION UNIT
(CONSTRUCTION ONGOING)

NORTHERN UNIT

SOUTHERN UNIT

SOUTHERN UNIT EXPANSION

WINNEBAGO LANDFILL PROPERTY BOUNDARY

ENERGY RECOVERY PLANT AND OFFICE BUILDING

FIRE PROTECTION POND

GAS PROCESSING BUILDING

LINDENWOOD ROAD

COMMONWEALTH EDISON R.O.W.

KILBUCK CREEK

i = 0.01270

G185 693.42; G182 713.38; G180 695.71; G179 *667.77; G178 694.73; G177 693.47; G176 693.20; G175 680.74; G174 689.27; G173 688.03; G172 689.48; G171 691.22; G170 691.68; G169 691.62; G168 691.78; G119 NA; G50S 698.76; G167 698.32; G52S (T4U-A) 699.20; G52M (T4L-A) 699.12; G18S *703.64; G18D 696.37; G184 697.27; G37D 702.56; G37S 705.35; G17S 699.05; G34D 703.09; G34S 704.31; R39S 699.26; G40S 699.36; G51S 698.05; R183 693.40; G16M 703.77; G16D 703.88; G35D 703.86; G35S 703.82; G41M 704.04; SG1; G41D 703.62; G41S 703.91; R03S 704.08; G03M 704.06; G33S 706.17; G33D 708.82; G38S 704.93; G36S 707.35; G130 707.56; R42S 709.06; G49D 708.64; R28D 710.00; R27D 711.24; G26S 711.67; G26D 711.58; R25D 712.57; R24D 712.96; G23D 713.90; G29D 716.54; G29S 714.13; G09M 722.82; G09D 723.19; R05S 720.38; G20D 723.49; G13S 720.57; G13D 720.26; R11S 718.39; G11D 718.65; R22S* 728.75; G22D 718.84; SG3

692 697 702 707 712 717 722

N 2,003,000; N 2,002,500; N 2,002,000; N 2,001,500; N 2,001,000; N 2,000,500; N 2,000,000; N 1,999,500

| | |
|---|---|
| 3Q10 | |
| SHEET NUMBER: | |
| PROJECT ID: 90-114 | |
| DATE: SEPTEMBER 2010 | |

POTENTIOMETRIC SURFACE MAP
3RD QUARTER 2010

PLANS PREPARED FOR
WINNEBAGO LANDFILL
ROCKFORD, WINNEBAGO COUNTY, ILLINOIS

ANDREWS ENGINEERING, INC.
3300 Ginger Creek Drive, Springfield, IL 62711-7233
Tel (217) 787-2334 Fax (217) 787-9495
Pontiac, IL • Naperville, IL • Indianapolis, IN • Warrenton, MO

APPROVED BY: JLR | DESIGNED BY: JLR | DRAWN BY: MPN

REVISIONS

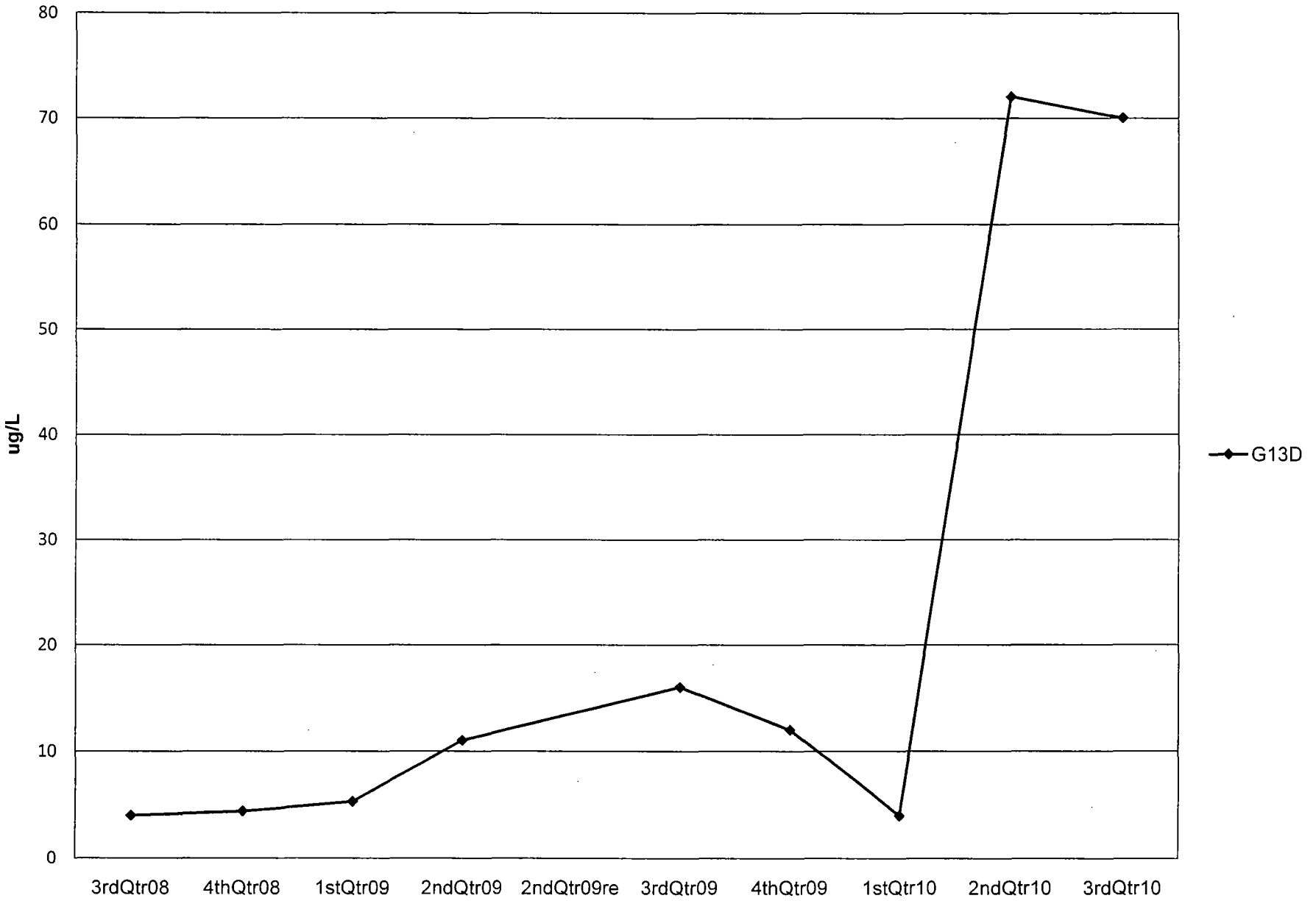
| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |

# APPENDIX C

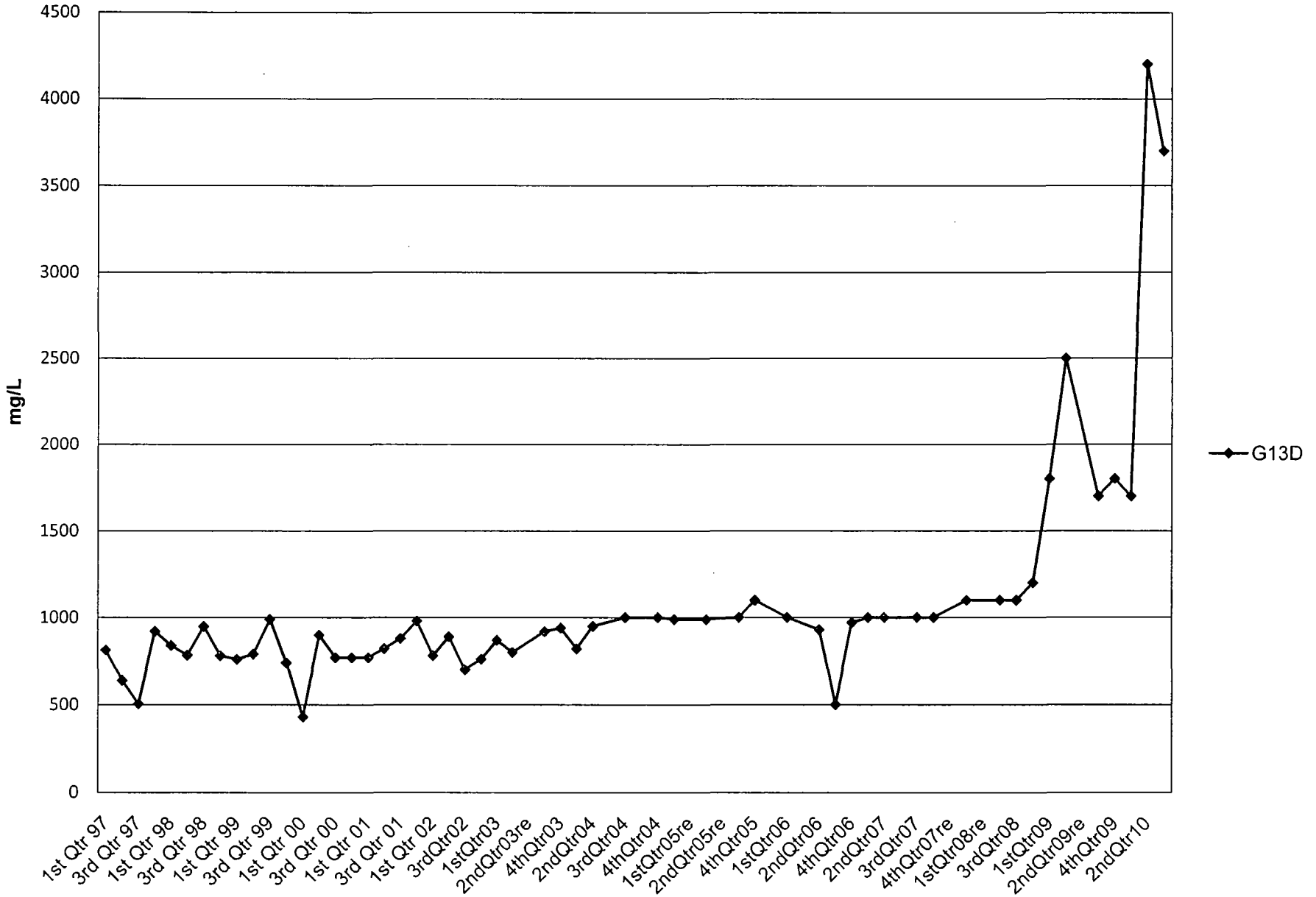
Graphical Trend Analyses

# Northern Unit

# Winnebago Landfill
## Northern Unit
## Dissolved Chromium

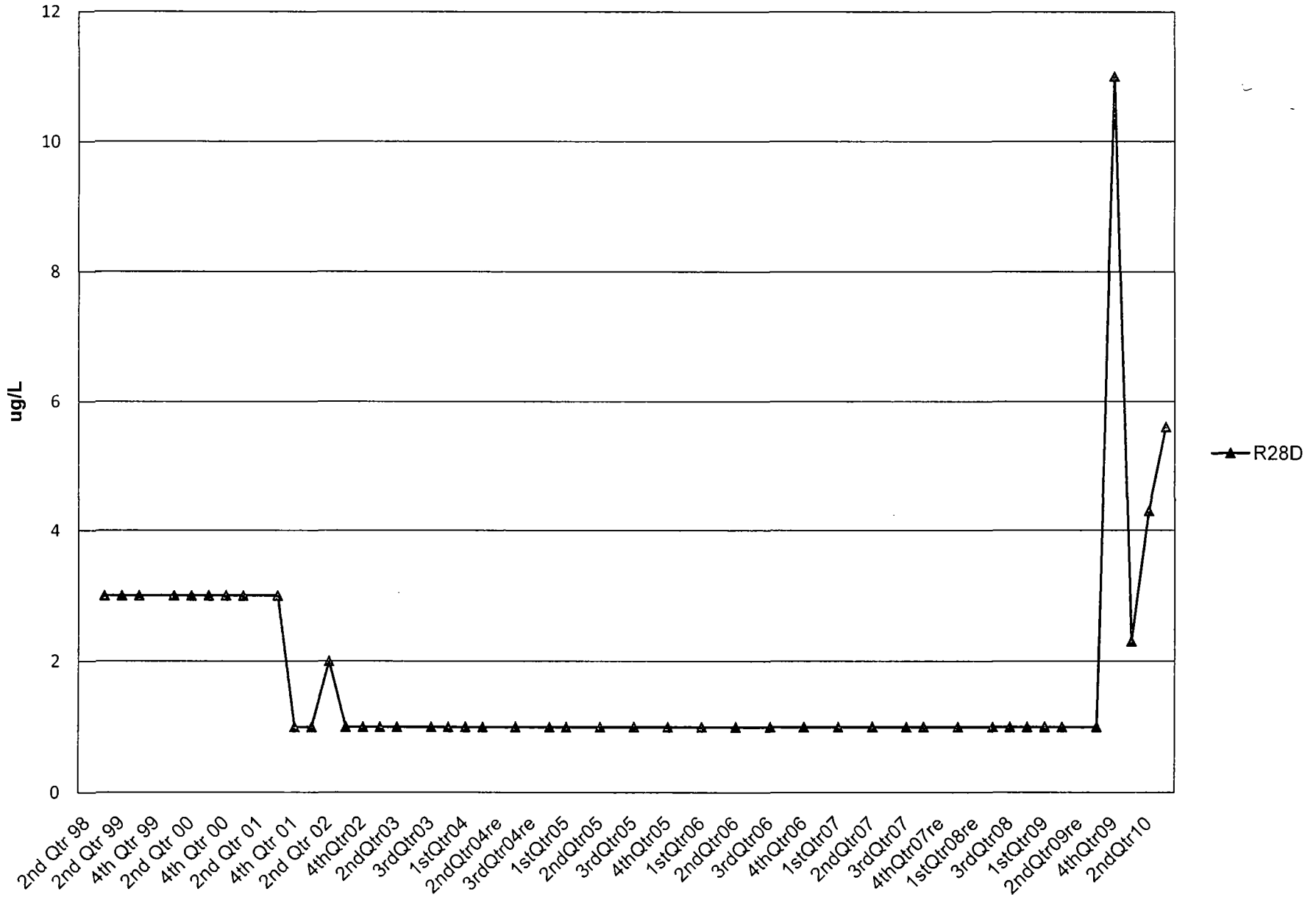


# Winnebago Landfill
## Northern Unit
## Total Dissolved Solids

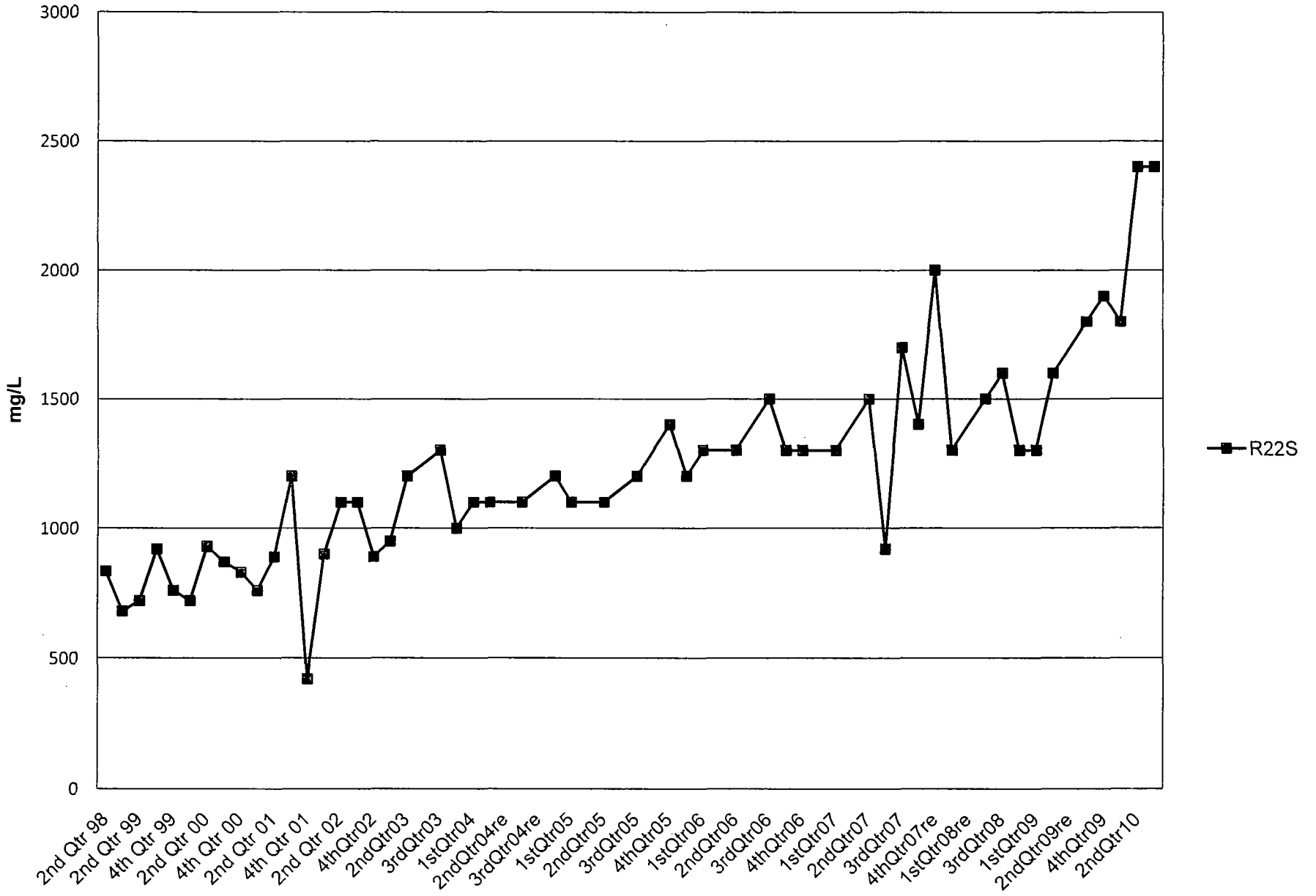


# Southern Unit

# Winnebago Landfill
## Southern Unit
## Dissolved Arsenic



# Winnebago Landfill
## Southern Unit
## Total Dissolved Solids



# APPENDIX D

Statistical Method

# Statistical Analyses Method

**References:**


1. 35 Illinois Administrative Code 811.320
2. "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance." Office of Solid Waste, USEPA, April 1989.
3. "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance." Office of Solid Waste, USEPA, July 1992.
4. "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance." Office of Solid Waste, USEPA, January 1993.


Background quality shall be determined using the statistical techniques set forth in 35 IAC 811.320(e). The data was tested for normality using the Shapiro-Wilk normality test. If the data was found not to follow a normal distribution, a nonparametric statistical method was utilized. The data was examined for outliers by the method described in the "Statistical Analysis of Ground-Water Monitoring, Interim Final Guidance and Addendum to Interim Final Guidance." After the outlier test the percentages of non-detect values (NDs) shall be calculated for each parameter to determine the applicable ND treatment method, if any. Once the treatment of non-detect values is done, the prediction limit for each parameter shall be calculated using the mean, standard deviation, and the appropriate t value. The statistical analysis uses a one-tailed test to determine an upper limit of significance. The upper prediction limit shall be the concentration for the probability that the constituent can be measured without constituting a statistical increase above the background. Any concentration found below this limit is regarded as falling within the normal statistical population.

## Statistical Method

The statistical method shall employ the 99% confidence limit (99% CL) for all interwell calculations and the 99% confidence limit (99% CL) for all intrawell calculations, which incorporates the mean, standard deviation, number of samples, and the Student's t value in the calculation of a confidence limit to determine general background groundwater quality. An upper confidence limit shall be calculated for each individual chemical parameter. The well data from the site shall be evaluated statistically with samples collected during four (4) consecutive quarters of background sampling.

## Handling of Outliers

Prior to statistical analyses the data set was evaluated for outliers. Outliers are defined as data points that vary significantly from the mean value for that data set. Outliers may represent

sampling error, contamination from surface run-off, analytical laboratory error, or anomalous site conditions. Outliers, if not removed from the data set, can erroneously increase the AGQS and minimize the occurrence of an exceedences related to a release from a waste unit. Once a statistical outlier has been identified, the concentrations shall be evaluated to determine the cause. If a valid reason has been determined for the outlier the data point will be removed from the data set. If no specific reason can be documented the point will considered representative and included in the analysis. Statistical analysis will then be conducted as described below.

## Handling of Non-Detects (NDs)

Non-detect values (NDs) were handled according to the percentage of Non-Detects (%ND) present in the background sampling. The %ND was calculated for each parameter from the pooled background data of each well set. The data treatment was done according to the following criteria:

a) For under 0% NDs, no adjustment is made to the values in the data set.
b) For under 15% NDs, the value of one-half (½) the reported Detection Limit (DL) was substituted for the ND value, and the mean and standard deviation were calculated using detected values with the substituted ND values.
c) For 15-50% NDs, Cohen's Adjustment was used to adjust the mean and standard deviation. The adjusted mean and standard deviation was then used to calculate the Confidence Limit.
d) For over 50% but not 100% NDs, the highest recorded concentration was substituted for the prediction limit.
e) For 100% NDs, the Method Detection Limit (MDL) will be substituted for the ND value. The mean and standard deviation was calculated using the substituted ND values.

## Confidence Limit

The statistical procedure was conducted according to the following steps:

1. Calculate arithmetic mean

The arithmetic mean was calculated using the pooled data for each parameter. The arithmetic mean ($X_b$) was calculated using the following equation:

$$X_b = \frac{X_1 + X_2 + \ldots + X_n}{n}$$

where: $X_b$ = Average background value
$X_n$ = Individual background value for *n* sample
n = Number of background values

2. Calculate standard deviation

The standard deviation was calculated using the pooled data for each parameter. The standard deviation was calculated using the following equation:

$$S_b = \sqrt{\frac{(X_1 - X_b) + (X_2 - X_b) + \ldots + (X_n - X_b)}{n-1}}$$

where: $S_b$ = Population standard deviation
$X_n$ = Individual background value for *n* sample
$X_b$ = Mean (1)
n = Number of background samples

3. Calculate the 99% Upper Confidence Limit (Intrawell Values)

The 99% Upper Confidence Limit was calculated for each parameter using the mean (1), the standard deviation (2), the number of background samples, and the Student's t value given for $\sigma = 0.01$ (99% Confidence). The Student's t value varies upon the number of background samples. For those parameters with greater than 50% but not 100% NDs, the Cohen Method was utilized to calculate the 99% Confidence Limit. The methodology described in "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Addendum to Interim Final Guidance" dated January 28, 1993 was used to calculate the Cohen Confidence Limit. The 99% Upper Confidence Limit for the remaining parameters was calculated using the following equation:

$$CL = X_b +\_ S_b \bullet t \bullet \sqrt{1 + \frac{1}{n}}$$

where: CL = Upper Confidence Limit (Upper and Lower for pH)
$X_b$ = Mean (1)
$S_b$ = Standard Deviation (2)
t = Student's t value at 0.01 significance (99% Confidence)
n = Number of background samples

4. Calculate the 99% Upper Confidence Limit (Interwell Values)

The 99% Upper Confidence Limit was calculated for each parameter using the mean (1), the standard deviation (2), the number of background samples, and the Student's t value given for $\sigma = 0.01$ (99% Confidence). The Student's t value varies upon the number of background samples. For those parameters with greater than 50% but not 100% NDs, the Cohen Method was utilized to calculate the 99% Confidence Limit. The methodology described in "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Addendum to Interim Final Guidance" dated January 28, 1993 was used to calculate the Cohen Confidence Limit. The

99% Upper Confidence Limit for the remaining parameters was calculated using the following equation:

$$CL = X_b +\_ S_b \bullet t \bullet \sqrt{1+\frac{1}{n}}$$

where: CL = Upper Confidence Limit (Upper and Lower for pH)
$X_b$ = Mean (1)
$S_b$ = Standard Deviation (2)
t = Student's t value at 0.01 significance (99% Confidence)
n = Number of background samples

# APPENDIX E

Statistical Calculations

**Winnebago Landfill**
**Southern Unit**
**Intrawell AGQS Statistics**
**R28D**

**Raw Data**

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 |
|---|---|---|---|---|---|
| R28D | | | | | |
| Dissolved Arsenic | ug/L | 11 | 2.3 | 4.3 | 5.6 |

**Outlier Testing**

$T = (X - X_{mean})/SD$, where $X$ = sample result

*Outlier* = $T > T_n$

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 | n Number of Samples | $X_{mean}$ Mean | SD Standard Deviation | $T_n$ Critical Values | 4Q09 | 1Q10 | 2Q10 | 3Q10 | 4Q09 | 1Q10 | 2Q10 | 3Q10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R28D | | | | | | | | | | | | | | | | | |
| Dissolved Arsenic | ug/L | 11 | 2.3 | 4.3 | 5.6 | 4 | 5.80 | 3.7229 | 1.492 | 1.397 | -0.940 | -0.403 | -0.054 | -- | -- | -- | -- |

A highlighted cell indicates an outlier.

**ND Analyses**

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 | Number of Samples | Number of ND's | % ND | ND Treatment |
|---|---|---|---|---|---|---|---|---|---|
| R28D | | | | | | | | | |
| Dissolved Arsenic | ug/L | 11 | 2.3 | 4.3 | 5.6 | 4 | 0 | 0.0% | NO ADJ |

Tolerance Limit = x + st[1+(1/n)]^½
Confidence Level = 99%

**Prediction Limits**

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 | ND Treatment | Mean | Standard Deviation | Number of Samples | T Value | Prediction Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R28D | | | | | | | | | | | |
| Dissolved Arsenic | ug/L | 11 | 2.3 | 4.3 | 5.6 | NO ADJ | 5.80 | 3.7229 | 4 | 4.5407 | 24.70 |

**Winnebago Landfill**
**Southern Unit**
**Intrawell AGQS Statistics**
**R22S**

**Raw Data**

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 |
|---|---|---|---|---|---|
| R22S | | | | | |
| Total Dissolved Solids | mg/L | 1900 | 1800 | 2400 | 2400 |

**Outlier Testing**

$T = (X - X_{mean})/SD$, where $X$ = sample result

*Outlier* = $T > T_n$

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 | n Number of Samples | $X_{mean}$ Mean | SD Standard Deviation | $T_n$ Critical Values | 4Q09 | 1Q10 | 2Q10 | 3Q10 | 4Q09 | 1Q10 | 2Q10 | 3Q10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R22S | | | | | | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 1900 | 1800 | 2400 | 2400 | 4 | 2125.00 | 320.1562 | 1.492 | -0.703 | -1.015 | 0.859 | 0.859 | -- | -- | -- | -- |

A highlighted cell indicates an outlier.

**ND Analyses**

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 | Number of Samples | Number of ND's | % ND | ND Treatment |
|---|---|---|---|---|---|---|---|---|---|
| R22S | | | | | | | | | |
| Total Dissolved Solids | mg/L | 1900 | 1800 | 2400 | 2400 | 4 | 0 | 0.0% | NO ADJ |

Tolerance Limit = $x + st[1+(1/n)]^{1/2}$
Confidence Level = 99%

**Prediction Limits**

| Parameter | Units | 4thQtr09 | 1stQtr10 | 2ndQtr10 | 3rdQtr10 | ND Treatment | Mean | Standard Deviation | Number of Samples | T Value | Prediction Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R22S | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 1900 | 1800 | 2400 | 2400 | NO ADJ | 2125.00 | 320.1562 | 4 | 4.5407 | 3750.32 |